User Manual

User Manual Version A for Software Versions 1.0.530+

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SD5 Operation Manual

Chapter 1:

Getting Started

1.1 The Console

The Digico SD5 consists of a worksurface, an audio engine and a range of onboard inputs and outputs. This can be connected to multiple Input/Output Rack Units by optical fibre and/or MADI links, which carry all the audio input and output signals.

The console worksurface consists of 3 sections that can be configured to control up to 124 input channels, 24 VCAs, 56 busses plus a Master buss (Up to 5.1) and 24 Matrix Inputs and Outputs.

The left and right sections have 12 assignable faders and 12 sets of assignable on-screen channel controls, the centre section has 12 assignable faders and a master fader.

The console's buss architecture is dynamic, and can support mono, stereo, LCR, LCRS and 5.1 configurations.

Multiple console setups can provide:

Front of House and Monitoring with shared stage racks and gain tracking.

Remote control of one console from another console or from a laptop computer.

1.2 Manual Overview

This manual is divided into five chapters:

- Chapter 1 provides an overview of the desk, and describes some of the basic operating principles which the user will need to understand in order to run the desk.
- Chapter 2 describes the functions of the different channel types.
- Chapter 3 describes the master section of the desk, focusing on the various menus in the Master screen.
- Chapter 4 describes network, mirroring and multi-console setups
- Chapter 5 is a guide to troubleshooting

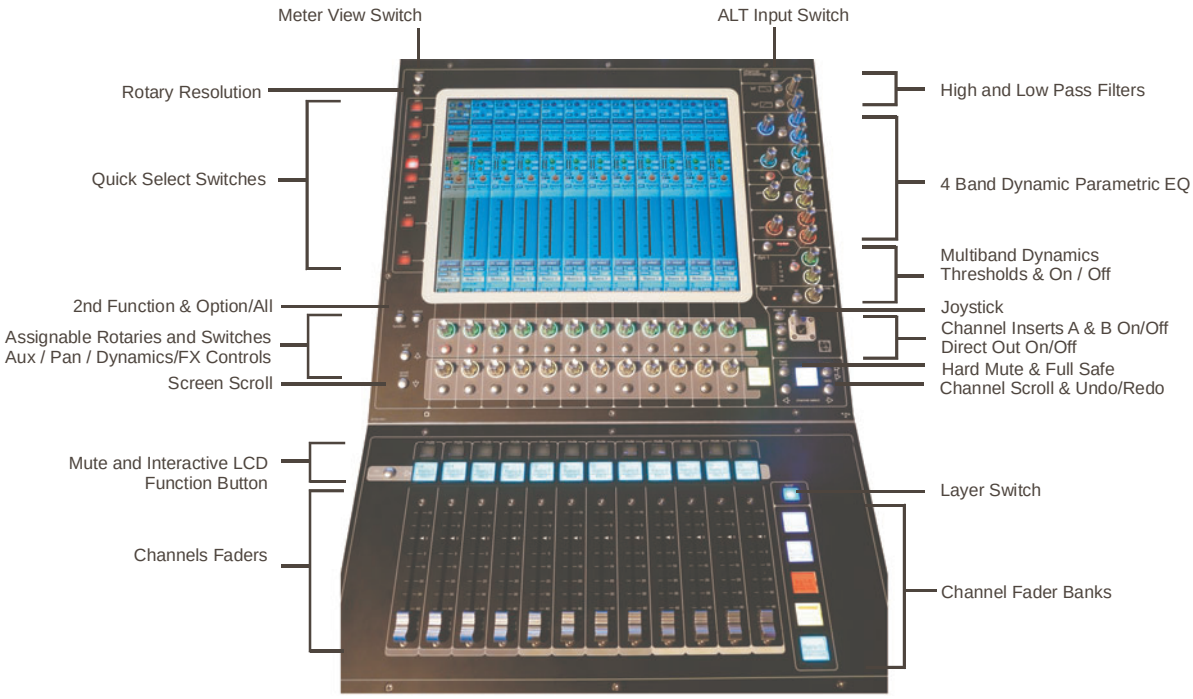
The following typographical convention used in this manual: An arrow bracket (>) is used to indicate a sequence of button pressing. For example, **Layout** > **Fader Banks** indicates that the **Fader Banks** button is accessed by first pressing the **Layout** button.

1.3 Before You Start

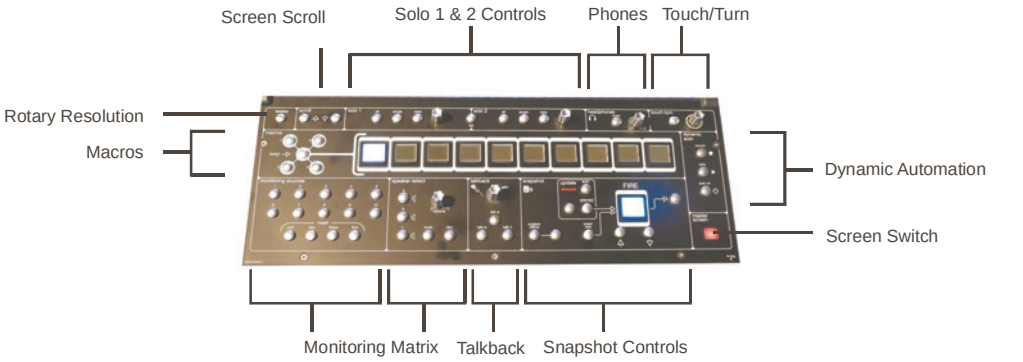
There are certain general operating principles and terms that should be understood before continuing to use this manual. Please read this chapter carefully before proceeding.

1.3.1 Worksurface Layout.....

Left & Right Sections



Centre Section



1.3.2 Layers and Banks .....

The SD5's worksurface is divided into Layers and Banks. Each Bank contains twelve channels, and the channels which are currently active on the control surface are defined using the **fader bank** and **bank layer** buttons to the right of the Channel Strip section's faders:

A 'bank' is a set of twelve faders, and a 'layer' contains up to five 'banks'. There are 2 'layers' in each section of the desk, allowing up to 120 channels to be accessible on each of the left and right worksurface sections and another 96 channels in the centre section.

Pressing the **bank layer** button, located above the **fader bank** buttons, toggles between layers.

To access a bank of faders within that layer, press the appropriate **fader bank** button. To switch all three sections of the console to the same bank level, press and hold one of the **fader bank** buttons.

The specific channels which are contained within each Bank is defined in the **Layout** > **Fader Banks** display. By default, the Input channels will be assigned to Layer 1 on the left and right sections of the console. The different output channels will be assigned to Layer 2 and also to the centre section. Control Groups will be assigned to the centre section. These bank assignments can be customised by the user and saved in a session at any time. Holding any bank or layer button down for a couple of seconds will switch all 3 worksurface sections to the same bank level or layer.

1.3.3 Using the Control Surface .....

There are two main ways in which all of the functions of the SD5 are accessed:

1. The touchscreen display, which can be controlled directly using a finger, or by using the keyboard and mouse
2. The physical encoders, switches and faders.

Note that when touching the screen directly, you may find it easier to use a finer point than your finger. However, in order to prevent damage to the screen, it is important that you only use devices specifically designed for touching screens (such as a pda stylus), and that you never press down hard on the screen.

A number of functions can be accessed in different ways, allowing users to operate the console using whichever interface they prefer. This manual will describe accessing on-screen functions by touching the screen directly and not by using the mouse.

All of the physical controls found in the centre section are described in full within the relevant section of the manual and many require no further introduction.

The Master screen has a row of grey buttons across the top, which are used to access a range of configuration displays. Pressing these buttons opens either a further drop-down sub-menu or a pop-up display. If a drop-down menu is opened, pressing on one of its entries will open a pop-up display. The buttons lighten to indicate that their sub-menu or pop-up display is open. A number of the buttons within each pop-up display generate further pop-ups.

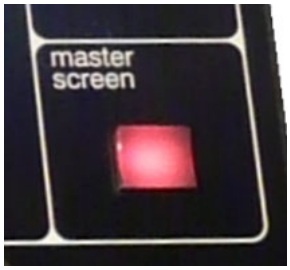
Generally, buttons within the pop-ups are coloured grey when their function is inactive, switching to a colour when their function is active. Pressing on a text box opens a numeric or QWERTY keypad which can be operated directly by pressing the screen or via the console's external keyboard.

Pop-ups are closed by pressing the box in the top right-hand corner of the pop-up, marked **CLOSE** or **CANCEL** (or by pressing **CAN** on keypad pop-ups).

To the right of the Centre Panel is a single encoder marked Touch-Turn (shown below). This is used to access any rotary controls within the Master Screen. To assign the Touch-Turn encoder to a particular on-screen pot, touch the pot to be assigned. You will notice that a coloured ring appears around the on-screen pot, indicating that it is assigned to the Touch-Turn encoder. The colour of this ring is unique to that control, and is also reflected in the base of the Touch-Turn encoder, providing further indication of which pot is currently assigned to it.

The **Master Screen** button in the centre section switches the centre screen view from the Master Screen to the bank of channels which are selected in the lower centre section.

Note: When the centre screen is assigned to show channels, there are no associated rotaries and switches to control mix parameters such as EQ and Dynamics. Any controls that only involve the touch screen such as routing functions can be performed in the normal way.



1.3.4 The Assigned Channel .....

One of the channels in the Channel Strip panel is displayed in gold, indicating that it is currently the Assigned Channel. This means that it has been assigned to the worksurface controls and can be configured in detail, as described below. To Assign a channel, touch anywhere in the channel on the screen (except the Aux Send area).

Alternatively, use the **ch** left and right buttons at the bottom of the channel worksurface controls to scroll through the channels in the panel:

Note that these left and right arrows are duplicated in the channel Setup and Output displays.

Note also that the Channel List display provides another method for assigning a channel to the worksurface controls.

Once a channel is Assigned, all of the controls for that channel which are not displayed within the channel strip itself can be accessed via secondary pop-ups, displayed by touching inside the relevant area of the channel. These pop-ups include controls such as input and output routing and signal processing parameters.

A number of the physical rotary encoders on the control surface can be assigned to different on-screen pots. In order to ensure that it is clear which function is assigned to which encoder, the assigned on-screen pot will have a coloured ring around it which will be reflected in the colour of the light around the base of the encoder on the control surface.

The 2 rows of twelve encoders and buttons immediately below the touchscreen (shown above) refer to the channels with which they are aligned.

Pressing one of the **Quick Select** buttons on the left of the screen will assign the selected function to the top row of these controls below the screen. Six aux sends can be displayed in the Channel Strip panel at any one time. If more than six aux sends have been created in the session, the scroll button outside the bottom left-hand corner of the screen can be used to scroll the display through the remaining auxiliaries.

The controls to the right of the Channel Strip panel allow the Assigned channel to be adjusted:

The top half of the channel worksurface controls (down as far as the **insert a, insert b** and **direct** buttons, as shown above) control the signal processing parameters which are displayed in the pop-ups accessed by touching in the appropriate section of the active channel. The bottom half of the channel worksurface controls is concerned with output routing.

To the left of the Channel Strip panel are more channel controls: When pressed, the **2nd function** button allows access to different parameters:

1) Stereo Aux Pan and Pre/Post switching
2) Hard Mute of a channel
3) Switching of LR or LCR panning
4) Fine adjustment of Delay settings on output channels

2nd function is indicated by a green **2nd Function** display appearing in the bottom left-hand corner of the screen, as well as by the **2nd function** button lighting with a ring of green.

The **Option/All** button has 2 main functions:

1) When pressed and released, any channel that is a member of a gang or Multi will be temporarily isolated from that gang or Multi.
2) When pressed and held, any parameter that is adjusted on a single channel will also be adjusted in the same way on all of the channels in that bank

1.3.5 The Master Fader .....

By default, the single fader in the centre section is assigned to the Master buss, which is the lowest stereo group output by default. In addition, the master fader can be assigned to the solo buss outputs using the buttons in the Master screen Solo panel.

1.3.6 Channel Types .....

The SD5 has 4 different channel types which are laid out in banks of 12 on the console worksurface and can be identified by their colour.

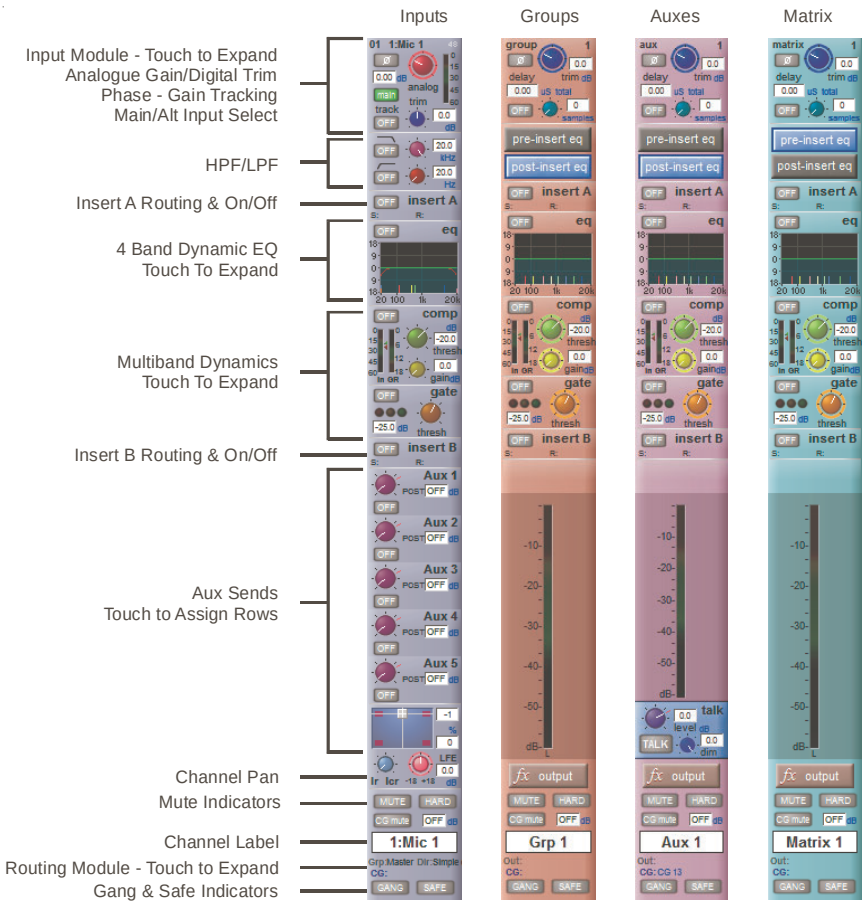
By default, the Input Channels will be assigned to Layer 1 on the left and right sections of the console.

The output channels (Groups, Auxes and Matrices) will be assigned to Layer 2 and also to the centre section.

Control Groups will be assigned to the centre section. These bank assignments can be customised by the user and saved in a session at any time.

Holding any bank or layer button down for a couple of seconds will switch all 3 worksurface sections to the same bank level or layer.

The controls on each different type of output channel are identical but an input channel has a number of additional features.

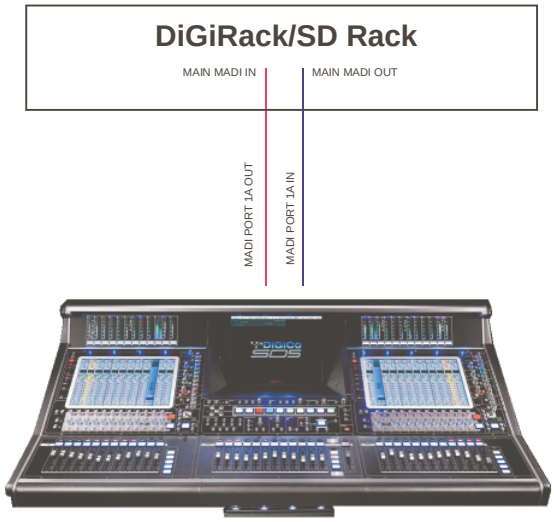


1.4 Hardware Configuration

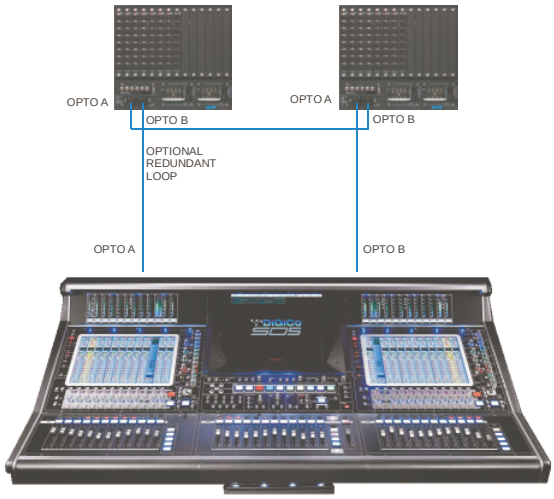
1.4.1 Connections .....

Detailed information on the various systems of connection is provided in the relevant chapter of this manual but the following diagram provides an overview of a single console/single rack setup.

CONNECTION WITH MADI



CONNECTION WITH OPTICAL FIBRE



All connections should be made before switching on the console and racks.

The console and rack each have dual redundant power supplies and both should be switched on at all times. After switching on the console the software will be launched automatically and the state of the worksurface and settings should be the same as when it was last Shut Down.

To Shut Down the console press the **System>Shut Down** button and wait until you receive a message saying that it is safe to switch the power off.

The SD5 worksurface has 8 analogue I/O and 8 AES I/O on its rear panel (referred to as Local I/O) and additional I/O is supplied in the form of remote Racks which can each accommodate up to 56 inputs and 56 outputs in different formats. These racks are connected to the worksurface by either 100M high specification 75 Ohm coaxial cables fitted with BNC connectors or optical fibre. The Racks have two pairs of MADI connectors - Main MADI IN & OUT and AUX MADI IN & OUT.

In normal operation the MADI connections should be as follows (see diagram above):

Rack MAIN MADI IN connected to the console MADI 1A OUT

Rack MAIN MADI OUT connected to the console MADI 1A IN

> ***Note - Optionally, a second set of MADI cables can be connected to provide MADI redundancy from the rack's AUX MADI ports to the console's MADI 1B ports***

The console's other MADI Ports can be connected to a MADI recorder (See **Audio I/O Panel** for setup details) or a second DiGiCo Rack or console.

1.5 Software Configuration

The SD5 has a default setup which means that the new user need not get involved in configuring the desk at this stage. However, here is a brief overview of how the different displays are used in putting together a session. Each of the master displays introduced below are described fully within the rest of the manual.

The **Files** > **Templates** display is used for loading pre-configured session templates.

The **Files** > **Session Structure** display is used for configuring how the console's audio channels are to be divided between channel types, and where the format of the channels is defined

The **Session Structure** display can be used to automatically assign the channels to the worksurface. However, channels can also be manually added to the worksurface using the **Layout** > **Channel Faders** display.

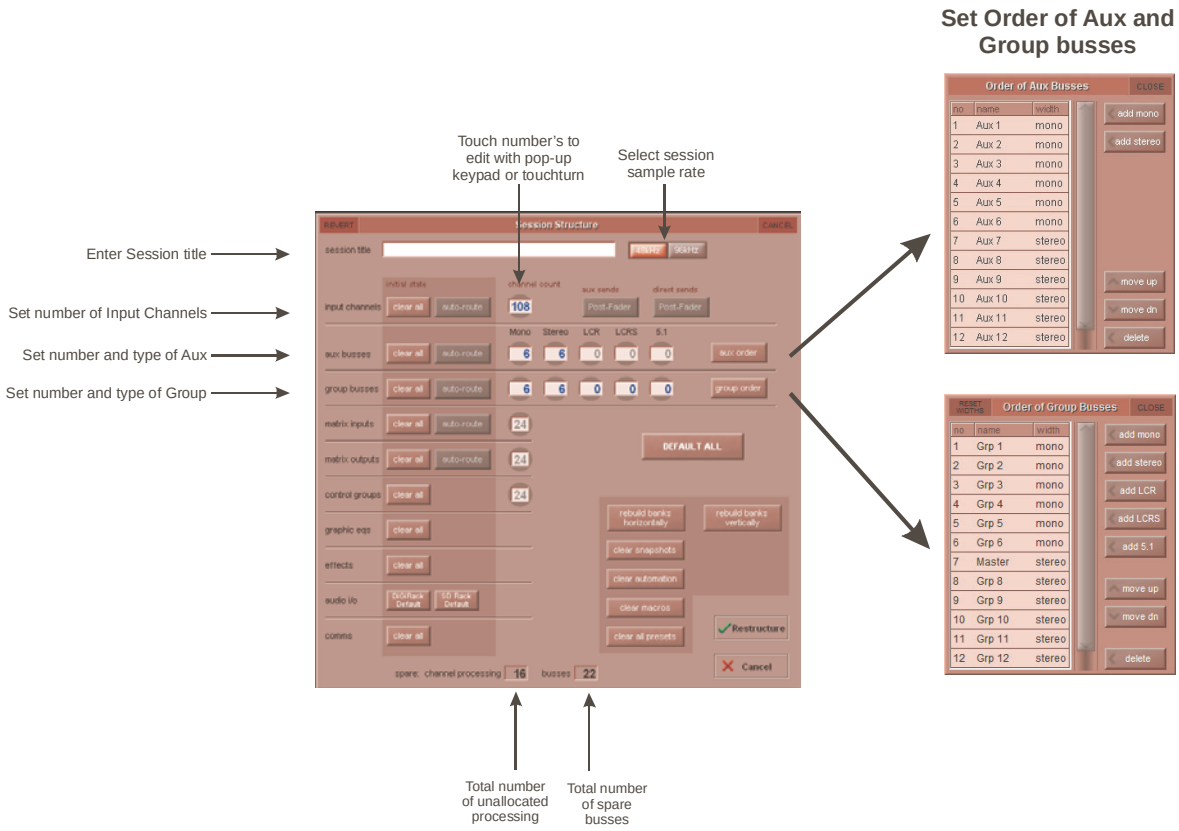
The **Setup** > **Audio IO** display is used to configure the physical I/O connected to the SD5, including configuring and naming the sockets of the option cards installed in racks, and the setting of pads and phantom power.1.5.2 Session Structure Overview

1.5.1 Templates .....

If any templates have been created, they provide an easy starting point for sessions which are already customised to your context. To load a session template, open the **Session Templates** display by selecting the **Templates** option at the top of the **Files** menu. Now touch the template you wish to load from the list shown, and press **OK**.

1.5.2 Session Structure Overview .....

When starting a new session from scratch, it is important to decide how many of each type of channel is required. While changes to session structure can be made once a session has been started, it is best to try and set these parameters before configuring the session. The structure will set items such as the number of input channels, the number and type of aux channels and group channels available.


Set Order of Aux and Group busses
Touch number's to edit with pop-up keypad or touchturn
Select session sample rate
Enter Session title
Set number of Input Channels
Set number and type of Aux
Set number and type of Group
Session Structure
Order of Aux Busses
Order of Group Busses
Total number of unallocated processing
Total number of spare busses

Begin by setting the sample rate at the top of the panel. There are a total of 124 input channels available and 56 busses (plus a Master buss).

Channel resources can be split into input or output channels in almost any configuration. The default configuration is :

108 input channels (Input channel formats are defined within each channel, not within the Session Structure)

6 Mono Aux busses & 6 Stereo Aux busses

6 Mono Group busses & 6 Stereo Group busses

24 Matrix Inputs and 24 Matrix Outputs

24 Control Groups

Note that a Talkback channel is also assigned to the control surface, though it isn't configurable within the Session Structure and is therefore not displayed there.

To adjust any of the channel allocations, touch on the associated channel count box, and either enter a number using the pop-up number keypad, or adjust using the assigned touchturn controller.

Clear All Buttons : When changing routing, you have the option of clearing any non-default routing or processing (EQ, dynamics etc) from the channels in the session. This is especially useful when restructuring an existing session to make a new session. The other '**clear**' buttons in the display perform similar operations.

Aux Sends and Direct Sends : By toggling the state of the **Aux Sends** and **Direct Sends** Buttons in the **Input Channels** section, it is possible to change the default operation of the Aux Sends and Direct Sends. These functions toggle between “Post Fader”, “Pre-Fader” and “Pre-Mute”.

Aux Order and Group Order : The Aux Order and Group Order buttons open a second window, providing you with the ability to change the order of auxes and groups. By default, mono busses come first, followed by stereo busses. The Master buss is the first stereo buss, regardless of the order you place the busses in.

Auto-Route : The Auto-route functions automatically routes consecutive inputs for input channels, and consecutive outputs for busses. For example, auto-routing 72 inputs will route the first physical input (eg 1:Mic 1) to input channel 1, the second physical input (1:Mic 2) to input channel 2… until you either run out of inputs or channels. Auto-routes are as follows :

Input Channels auto-route with physical inputs

Aux, Group and Matrix Channels auto route to physical outputs

Matrix Inputs auto-route with group outputs

NOTE : Auto-Routing can only be used in conjunction with the “Clear All” button.

Rebuild Banks : When changing the number of allocated channels in any section (input channels, busses etc), you can restructure the session without rebuilding banks, meaning that any additional channels you have allocated will not be “placed” on the worksurface, and need to be manually assigned to faders. If however, you restructure a session with **Rebuild Banks** (either **Horizontally** or **Vertically**) enabled, the worksurface will be built with all channels available on the worksurface in a default layout. Rebuilding horizontally will result in input channels being spread across the top layer of both sides of the console, using as many banks as required, with output channels being assigned to Layer 2. Rebuilding vertically will result in input channels being assigned to Layer 1 on the left side of the console, and output channels to Layer 1 on the right. See the Session Structure section of Chapter 3 for more details.

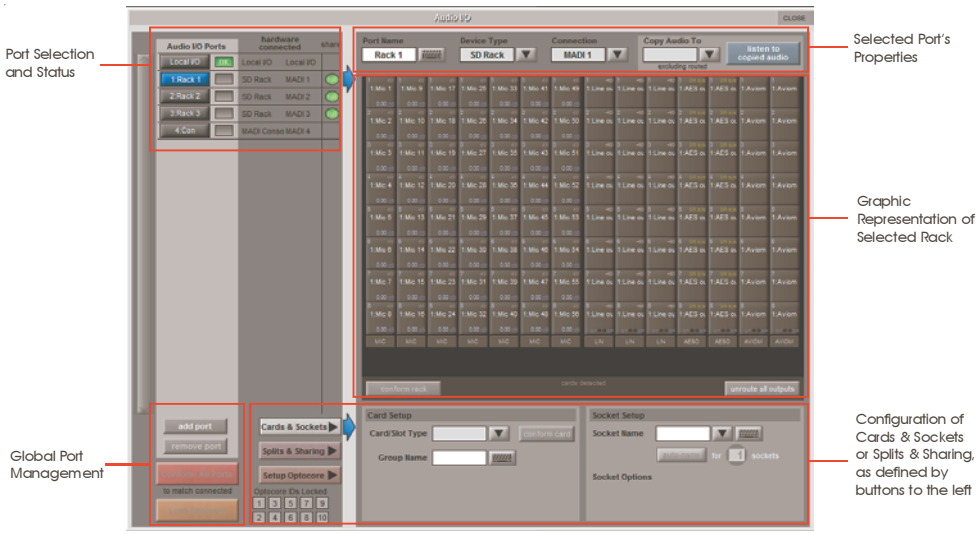
1.5.3 Audio I/O Overview .....

The Audio I/O window is used to configure the physical I/O connected to the SD5, including configuring and naming the sockets of the option cards installed in racks, and the setting of Pads and phantom power.

Local I/O : The SD5 provides local audio I/O on the rear of the console. These operate independently of connected racks, providing additional audio I/O.

To access the SD5 Audio I/O Setup Touch “Setup” on the Master Screen, followed by “Audio I/O”

The Audio I/O window that opens is divided up into the following sections:


Port Selection and Status
Selected Port's Properties
Graphic Representation of Selected Rack
Global Port Management
Configuration of Cards & Sockets or Splits & Sharing, as defined by buttons to the left

The top-left corner of the window shows the ports. Each port relates to an available physical audio connection (Local IO, IO Rack, or MADI Port). Ports can be added and removed using the buttons towards the bottom-left corner of the window.

The top-right area contains the controls relating to specific ports. When a port is selected, this section changes to reflect the status of the selected port, and allows its configuration to be changed as required.

Most of the right-hand section of the panel consists of a graphical representation of the rack configuration connected to the selected port. Depending on the port selected, the graphic will change, showing the available physical I/O. Each small “square” on the image represents a single physical audio connection or socket, with these arranged in columns or rows, representing I/O cards in racks, or the local I/O on the back of the console.

The section below the graphical rack picture allows configuration of either the cards or slots and sockets (including custom naming, phantom power and pad selection), or card splits and control sharing. The **Cards & Sockets** and **Splits & Sharing** buttons define which elements are displayed for configuration.

The local I/O configuration is fixed, so no hardware changes are possible. You can, however, change the Port Name, the Group Names (relating to the name of each physical card) and the Socket Names (the name of each physical connector on a card).

1.5.4 Opto V220 (DiGiRacks) and Opto V221 (SD Racks) .....

SD Series consoles can operate with either one of two different Optocore firmware versions - V220 and V221.

V220 is compatible with DiGiRacks and MiNiRacks and cannot be used with SD Racks or DRacks.

V221 is compatible with SD Racks, SD MiNiRacks, NaNoRacks and DRacks, and cannot be used with DiGiRacks and MiNiRacks.

Note: Any type of rack can be used with an SD Series console if it is connected with Coaxial BNC MADI irrespective of the Optocore version that the console is using.

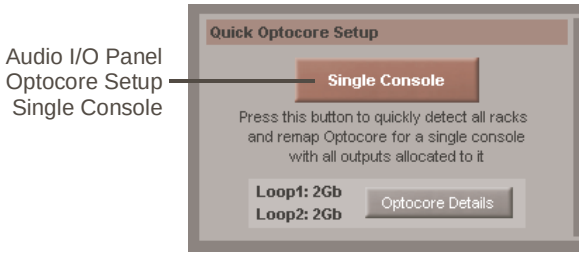
Sessions that have been created using Optocore connected DiGiRacks and MiNiRacks can be used with SD Racks and DRacks but a procedure must be followed to achieve this.

Sessions created using Optocore connected SD Racks and DRacks can also be used with DiGiRacks and MiNiRacks but this also involves a “conversion” procedure.

Note: For detailed information on Optocore system setup please refer to the user manual appendix - DiGiCo Optocore V221 - For SD Rack Optocore Operation

1.5.5 Single SD Console System .....

On an SD5, go to Setup/Audio I/O. Press the Setup Optocore button and the Single Console button will be shown with a bright red background. Press this button, press Yes at the confirmation stage and the console will create ports for all connected racks, allocate all output cards to your console and create the Optocore map. The system is now ready to use.


Audio I/O Panel
Optocore Setup
Single Console
Quick Optocore Setup
Single Console
Press this button to quickly detect all racks and remap Optocore for a single console with all outputs allocated to it
Loop1: 2Gb
Loop2: 2Gb
Optocore Details

1.5.6 Automatic Conforming .....

Once all hardware is connected, go to System/Diagnostics/Optocore. This will list all connected Optocore devices either SDeng (console engines) to SDrack (SD Rack or D Rack) by ID. If any expected devices are not listed, please check all physical connections, Optocore ID’s and Fibre Speeds. Once all devices are present, close the Diagnostics panel.

Irrespective of the type of rack being used, the system needs to be conformed. This involves the console checking the type of racks connected and their I/O capability

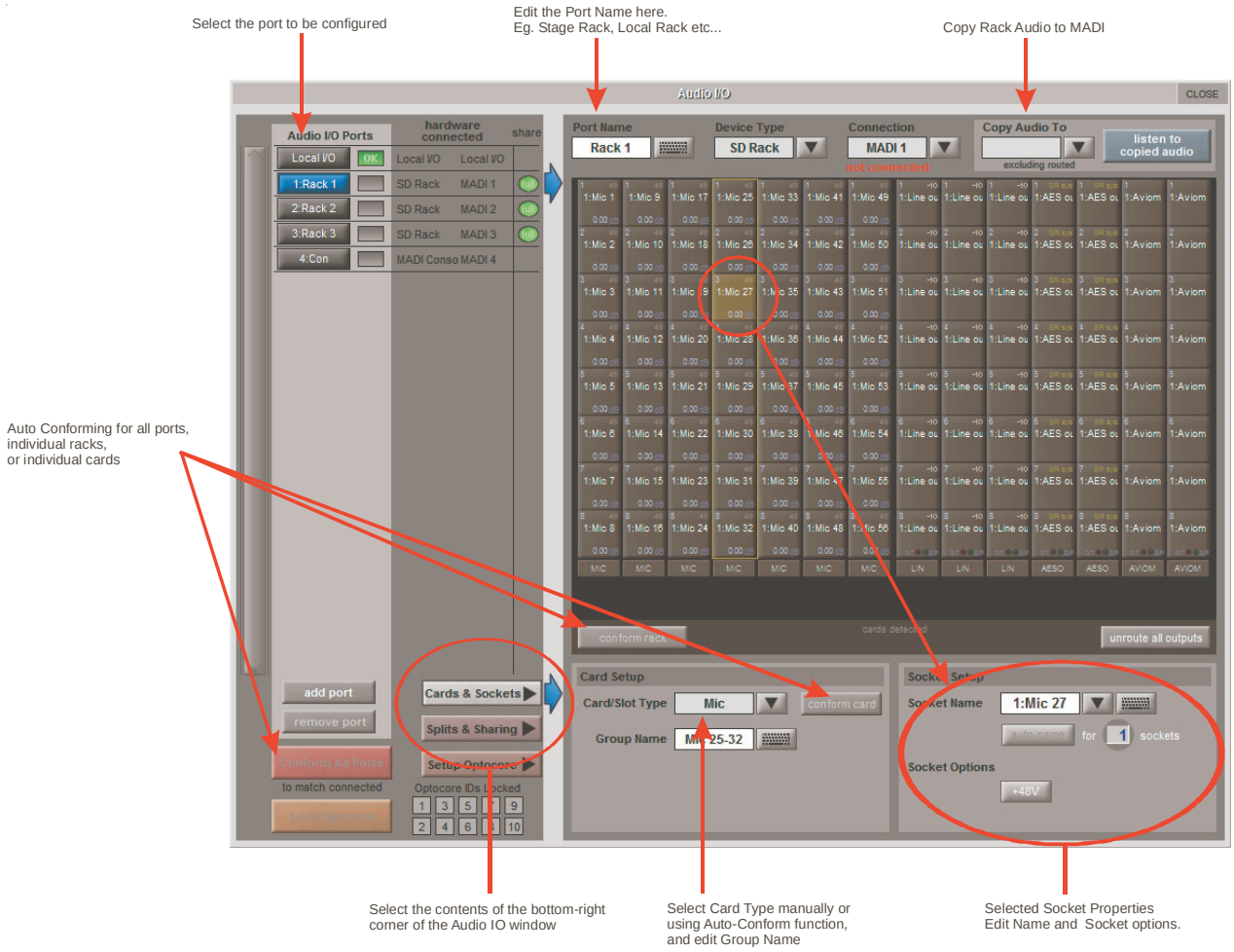
There are three levels of automatic conforming:

- globally, using the red Conform All Ports button in the bottom left of the window;
- on a rack-by-rack basis, using the **conform rack** button just below the rack view section of the window;
- on a card-by-card basis, by selecting a socket from the card in the graphical display and using the **conform card** button next to the Card/Slot type button selector in the lower section of the window. (Note that the **Cards & Sockets** button towards the bottom-left should be selected)

Pressing any of these buttons will correctly select the card types for the range in question. Once complete, all of the Card Labels beneath each slot should turn green.

1.5.7 Manual Conforming of Racks .....

With a Rack selected in the left hand port selection list, the window will look something like the image below, depending on the cards installed in the connected rack. The graphic shows the 14 available cards/slots, 7 input & 7 output.



In order to use the rack, the on-screen contents of the rack must match the cards physically installed in the rack connected. This is normally achieved by pressing the **Conform All Ports** button but can also be achieved manually if necessary.

Select each card (column) and manually select the appropriate card in the Card/Slot Type drop down menu in the lower section of the window (displayed when the **Cards & Sockets** button towards the bottom-left is selected). Once the correct card type is selected, the Label at the bottom the selected card will turn green, indicating the card type matches the card installed in the rack. If the Card Type name is Red, then there is a mismatch, and the error should be corrected by selecting the correct card type.

Copying Audio and Listening to Copied Audio (MADI Recorder Setup)

Audio from a Rack can be copied to the MADI Port Output by selecting the incoming Port in the Ports list and using the **Copy Audio To** drop down menu. For example, if you want to copy the Rack Audio Inputs to a recorder connected over MADI, select **Rack 1** in the ports list and then select **MADI** from the **Copy Audio To** drop down menu. The 56 inputs on Rack 1 will be copied to the SD5 MADI output.

In addition, by connecting the recorder's MADI Output to the SD5 MADI Input, the playback can be monitored in the same channels as the original source material. Just press the **Listen To Copied Audio** button to monitor playback and press it again to return to monitoring the live sources from the rack.

Standard MADI Connections

If you have a standard MADI connection (not a DiGiCo Rack) to your SD5, you can set the console to display the MADI with generic signal names, i.e. MADI 1, MADI 2.. etc. through to MADI 56 instead of the usual rack style names. The naming does not affect the signal, but makes routing signals easier.

Unrouting All Outputs

All outputs to the selected port can be unrouted at once by pressing the **unroute all outputs** button below the cards graphic and selecting **yes** in the warning pop-up which appears. "Copied" audio is not unrouted by this action.

Note that this will cancel all routing created in the channel screens and cannot be undone.

1.5.8 Rack Sharing

In a multi-console system where Racks are connected with MADI and shared between two DiGiCo Consoles, only one of the consoles can take control of the rack, with respect to Gain, Phantom Power and Pads. To overcome this, it is possible to place the SD5 into one of 3 states of operation:

Isolate : The SD5 will not communicate with the rack and therefore any adjustment of input gain or +48V switch will have no effect on the rack settings

Receive Only : The SD5 will receive the rack's existing settings but will not be able to control the gain etc on the racks.

Full Control : The SD5 will send its settings to the racks and change them accordingly.

Sharing is configured in the **Rack Sharing** area, found in bottom right-hand corner of the window when the **Splits & Sharing** button is selected:

These three states can be set on a per-rack basis (right column), or globally for all shared racks (left column).

1.5.9 SD Rack Splits

The SD Rack offers 2 dedicated Split outputs - Main and Aux plus the ability to split any input card to the same numbered output card.

If the rack is running at 48KHz, each rack split output provides a 48Khz Split.

If the rack is running at 96KHz the Main split output provides 96Khz channels 1-28 and the Aux split output provides 96KHz channels 29-56.

Alternatively, If the rack is running at 96KHz each split output can provide 56 channels at 48KHz.

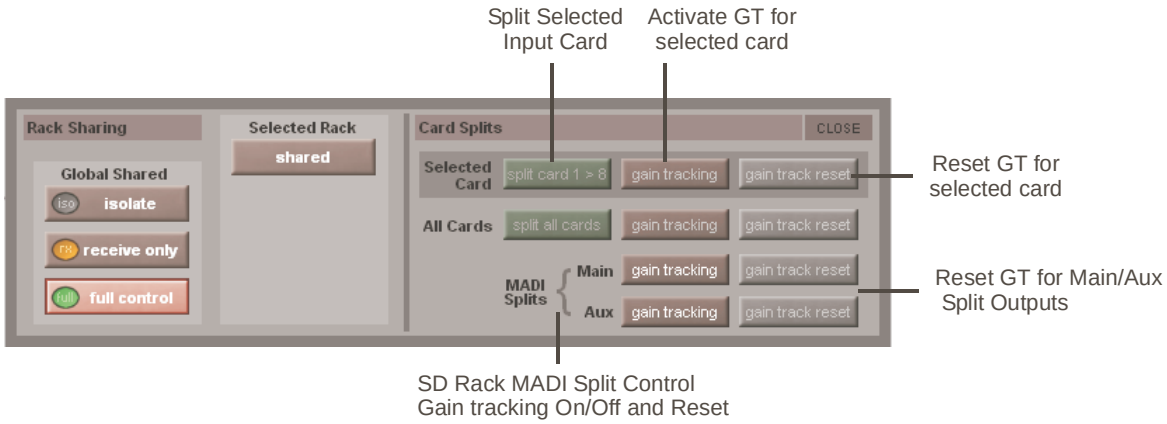
The setting of these modes can only be adjusted on the SD Rack itself - please see the SD Rack documentation for details.

Each split can have automatic **Gain Tracking** that will compensate the output level for any changes in the relevant input gain.

All of these functions can be controlled on the rack itself through its own menu system but the console **Audio I/O** panel can also be used.

Be very careful when adjusting these parameters because they will obviously have a potentially dramatic effect on the rack's functionality.

NOTE: A card split cannot be activated if the relevant output card has already been allocated to Optocore - it must be released by the console that it using it first.



1.5.10 Assigning Faders to the Worksurface

If, after a Session Restructure, you find that newly created channels do not appear on the worksurface, open the **Layout/ Channel List** panel on the Master screen and you will see a full list of all input and output channels that are present in the session.

To assign channels to the worksurface, select a bank and press the **LCD Function** button.

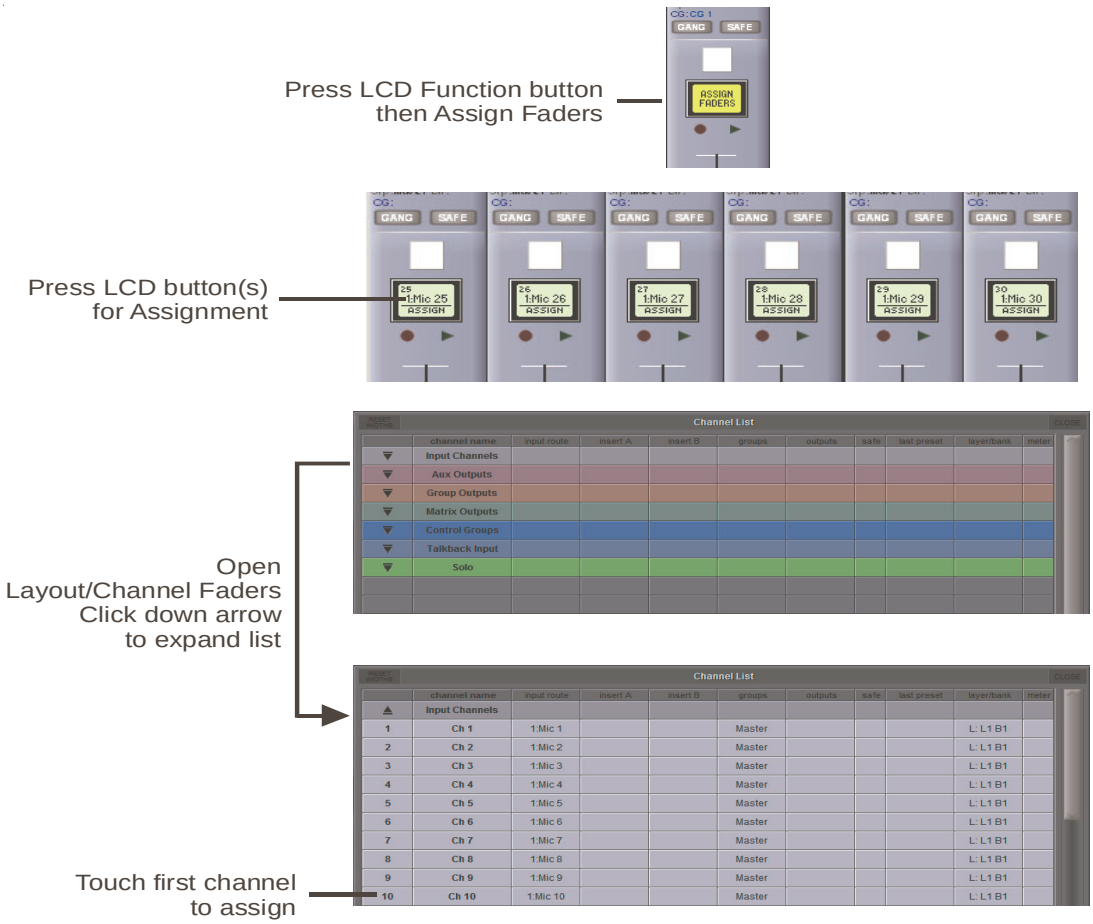
Then press the LCD button labelled **Assign Faders** to enter that mode and press each of the LCD buttons for the channels that you wish to assign.

Now press the first channel that you wish to assign on the **Layout/Channel Faders** list on the Master screen.

Consecutive channels will be assigned to the worksurface for each LCD button that is in Assign mode.

Now press the LCD Function button again and return to the standard mode by pressing the LCD button labelled **Solo**

Note that column widths can be adjusted by dragging their borders within the title row. To return all columns to their default widths, press RESET WIDTHS, in the top left-hand corner of the window.



1.6 Saving and Loading Sessions

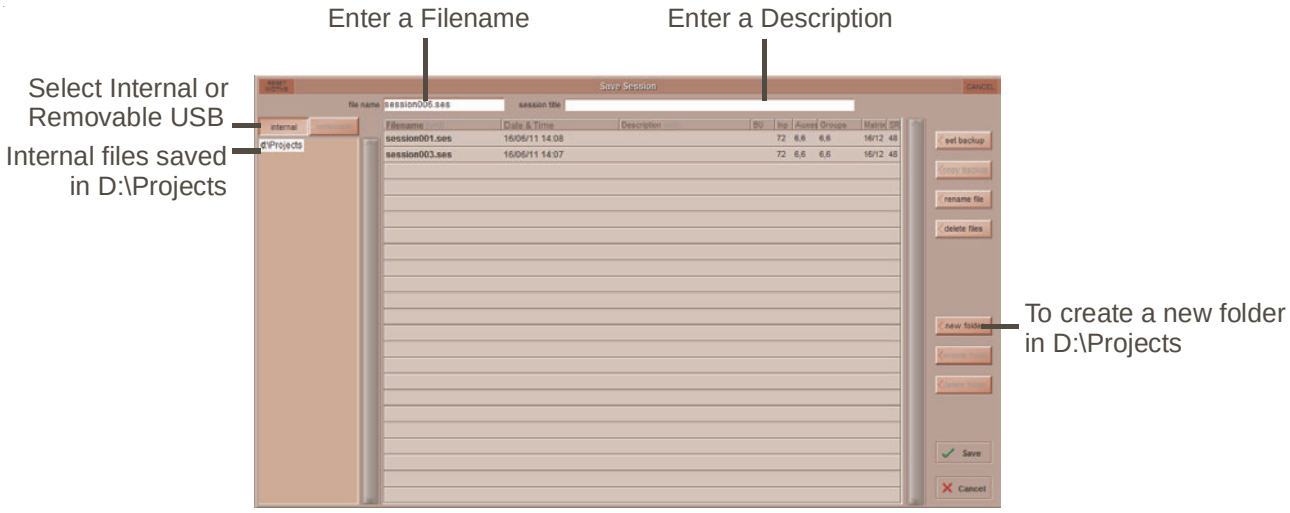
1.6.1 Save As New File .....

When you change the configuration of a session you should save it to the console's flash drive under a new filename.

If the Save Session panel has not appeared automatically after a session restructure then touch the **Files** button on the Master screen and then press **Save As New File.**

Select the destination drive (Internal or Removable) and file path and then enter a new file name and description for the file - then press the **Save** button.

Note: If you touch a session name on the existing list, this name will automatically be selected as the new file name and touching Save will overwrite the old file.



Note that column widths can be adjusted by dragging their borders within the title row. To return all columns to their default widths, press RESET WIDTHS, in the top left-hand corner of the window.

1.6.2 Save Session .....

This button which is found above the **Save As New File** button will save the existing session in the same location and under the same file name as it was previously saved or loaded from. It therefore serves as a "**Quick Save**" option to update an existing session.

Remember that this function will overwrite your last saved version.

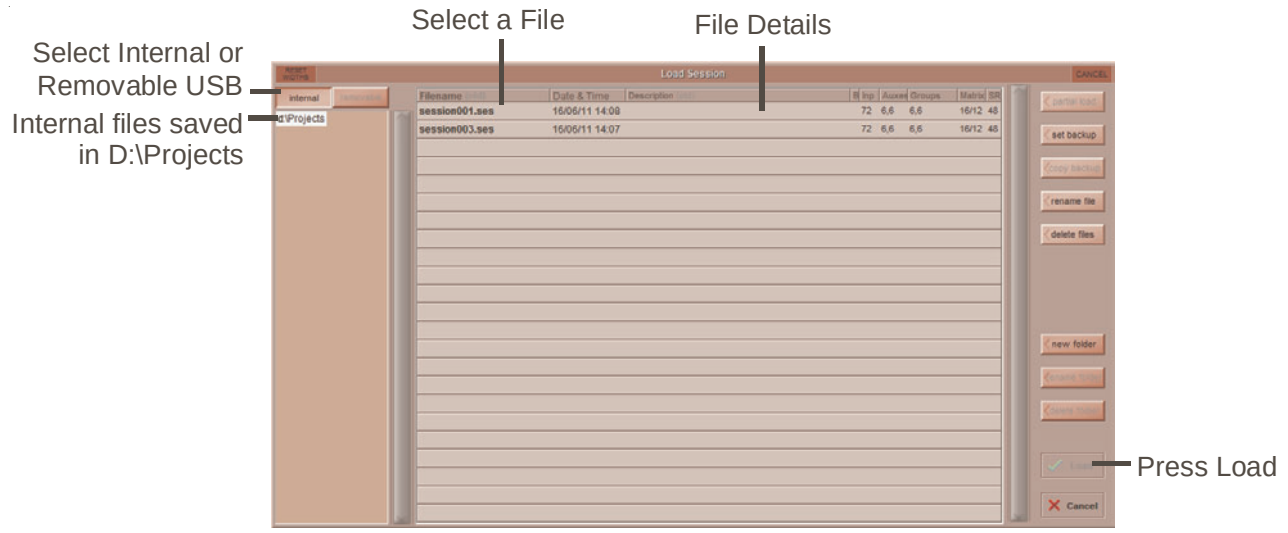
If you wish to save the session under a new name use the **Files** menu button and select **Save As New File** (See above).

1.6.3 Load Session .....

To load a previously saved session:

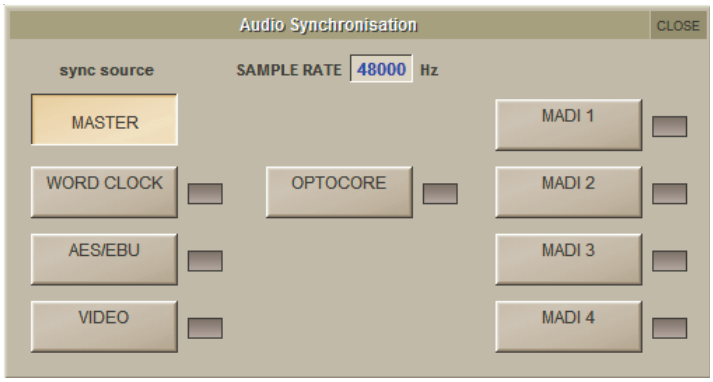
Touch the **Files** button on the Master screen and then press **Load Session.**

Select the source drive (Internal or Removable) and the required file from the list - then press the **Load** button.



1.7 Audio Sync

To access the **Audio Sync** Panel, touch the **Setup** Menu button, followed by **Audio Sync**. The following window will open...

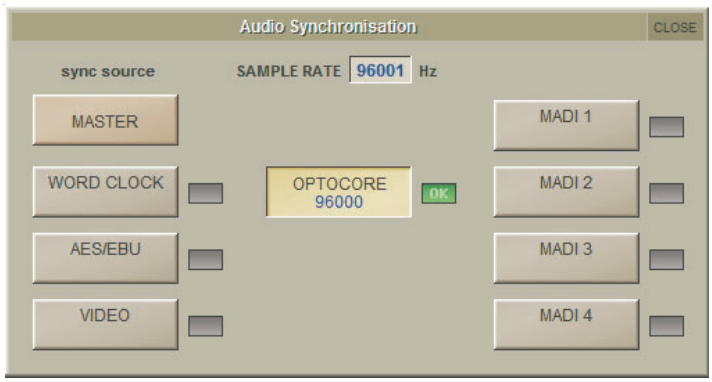


The SD5 will operate at Sample Rates of either 48000Hz (48kHz) or 96000Hz (96kHz), as configured in the **Session Structure** panel.

By default, it is set to clock internally but the standard Audio Sync method is Optocore when the entire system uses the device with the lowest Optocore ID (usually ID1) as its sync source.

This setting is saved within the session file so if any console(s) are connected to racks with optical fibre then all console engines should be set to Optocore as their sync source.

Example Clocking from Optocore@ 96kHz



There are also times when the SD5 needs to be clocked externally. The Audio Sync panel allows you to control external synchronisation.

The SD5 will clock from the following sources : Word Clock, AES/EBU, Video Reference, MADI & Optocore

In this situation one Optocore device should be set to clock to the external source and all other Optocore devices should be set to sync to Optocore.

Note : When a valid clock is detected on an external sync input, the corresponding Green OK box will light, even if that input is not selected as the clock source for the SD5.

1.8 Routing Basics

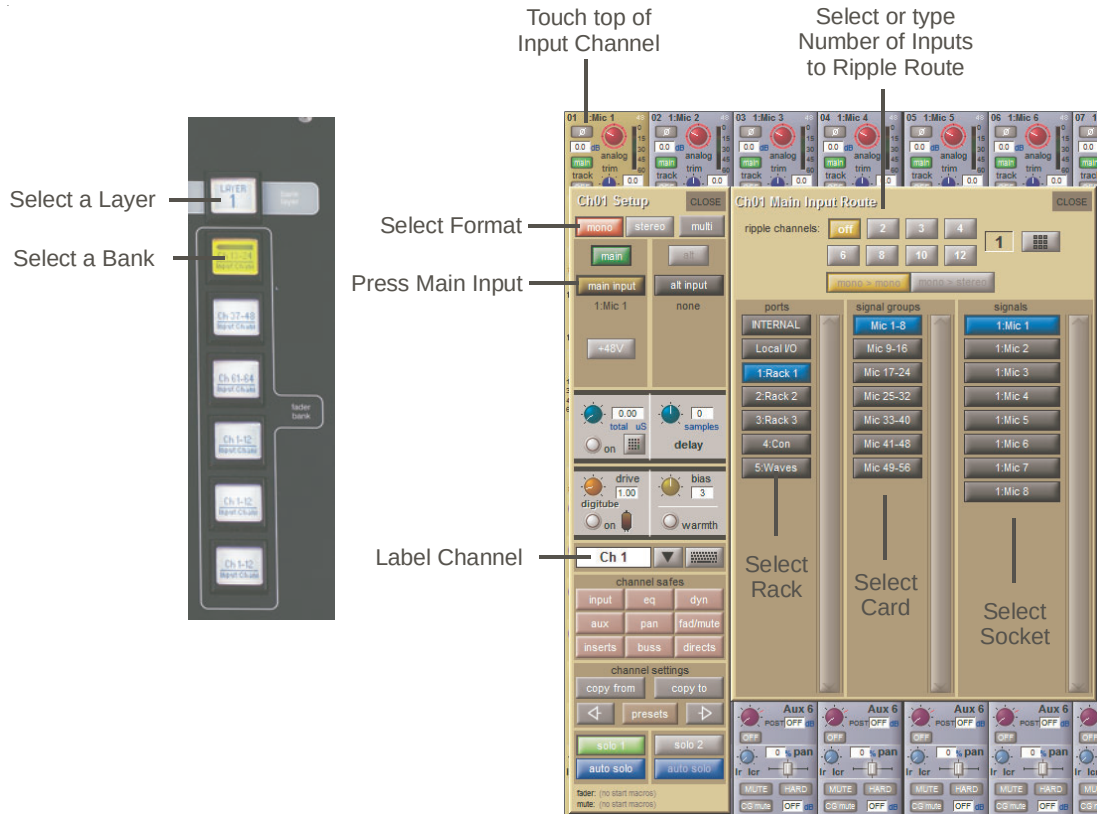
1.8.1 Selecting Inputs & Outputs .....

All channel input, output, insert send and insert return routing is done via routing displays, accessed via the dark grey routing buttons in the channel **Setup** and **Output** displays (shown below for an Input channel's input).

> ***Note that multi-channel signals are routed individually, and then collected together as a "Multi Channel" as described in Chapter 2.***

To access Channel Input Setup, touch the top of an input channel display on the touchscreen.
To access Channel Output Setup, touch the bottom of any channel type's display on the touchscreen.

It is also possible to configure channel input and output routing directly from the **Channels List** display: Activate the **Edit** button at the base of the display, then touch the input route box for a channel. A standard Setup display will then appear, from which a Routing display can be opened. Inserts and Outputs can also be routed from this display by touching in the appropriate column.



Within each display, there are three columns containing three levels of routing selection:

- The left-hand column contains the available **ports** within which the desired input or output might be located;
- The middle column, **signal groups**, then shows the available groups of inputs or outputs within that port;
- The right-hand column, **signals**, then displays the individual inputs or outputs available within that signal group.

The boxes in each column are lit blue to indicate that they are currently selected. If there is already a routing assigned within the display, the **port** and **signal group** columns containing the current assignment will be half-lit.

Each output can only have one channel routed to it. The outputs that are currently in use by another channel display in blue text. If you attempt to route a different channel to an output which is already in use, a confirmation box appears, indicating which channel is already using it, and warning that continuing with the action will cause the old channel to be unrouted from this output. Press **Yes** to proceed, **No** to cancel.

> ***Note that when routing direct outs from Input channels or outputs from output channels, any number of available signals can be selected. A new route selection will therefore be added to previous selections in these cases. However, inputs, insert sends and insert returns can only route to/from one signal (in the case of mono channels) or two signals (in the case of stereo channels). A new route selection will therefore result in the previous selection being lost for inputs and insert sends and returns.***

For stereo channels, left and right routes are presumed to be consecutive: When routing stereo signals, select the left route, and the next signal in the list will be automatically selected as the right route. If the last signal in a signal group or port is selected as the left route, the first signal in the following signal group or port will selected as the right route.

For input and insert return routing, the **INTERNAL** port provides the following signal groups:

Misc: The oscillator, white and pink noise generators.
Graphic EQs: The outputs of the SD5's internal graphic EQ's.
Effects: The outputs of any effects sends that have been created
Channels: The direct outputs from the other input channels
Groups: The outputs of the group busses
Auxes: The outputs of the auxiliary busses
Matrix: The outputs of the matrix busses.

Note: The outputs for the channel being routed are locked out of the signal list

Note also that the console views all routes as a single list. Therefore, if the left signal is connected to the last signal in a port, the right signal, will be automatically connected to the first signal of the next port, regardless of port type.

For output and insert send routing, the **INTERNAL** port provides access to the inputs of the SD5's Graphic EQ's, and the inputs to any effects that have been created.
The **0:Local I/O** port contains a list of the inputs or outputs found directly on the SD5's back panel.
The **Rack** ports contain all of the inputs or outputs available within the remote I/O racks, as defined in the **Audio I/O** display
Once a route has been selected, its name will appear below the routing button in the **Setup** or **Outputs** display.

Whenever a route is created, metering and additional controls are made available below the routing button. These controls are dependent on the type of route created, and are described in detail within Chapter 2 where necessary:

Line input routed to an input or insert return:	an analogue gain control.
Mic pre-amp routed to a mono input:	an analogue gain control and a **48V** button for remote control of rack functions.
Mic pre-amp routed to a stereo input:	an analogue gain control and a **48V** button for remote control of rack functions.
Mic pre-amp routed to an insert return:	an analogue gain control, a **48V** button and a phase reverse (**Æ**) button.
Output routed to a console output:	a **-10db** pad (rack out only), **on** button for switching the send on and off, gain trim and send point selector which toggles the place within the channel from which the direct output is fed: **pre-F** Pre-fader, **post** Post-fader **pre-M** Pre-mute (and pre-fader)
Insert send routed to a console output:	a **-10db** pad (rack out only), **on** button for switching the send on and off, and trim.
Insert send routed to a graphic EQ:	an **on** button for switching the send on and off
Output routed to a graphic EQ:	no additional control.

Buttons become ringed in either red or green to indicate that they are on.

1.8.2 Ripple Channels .....

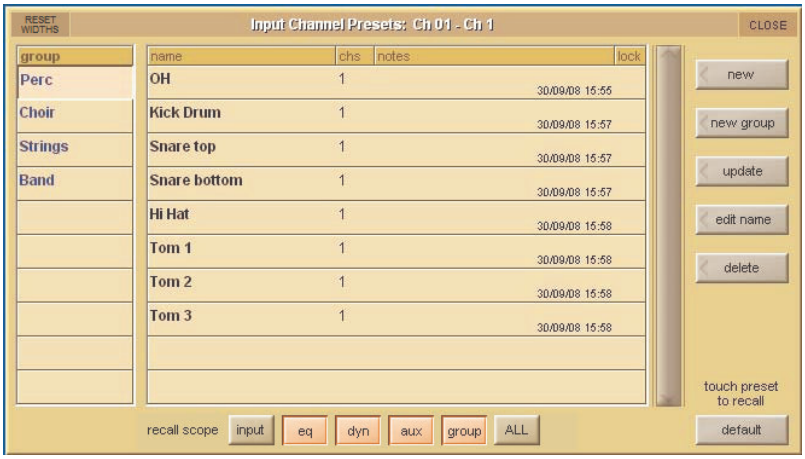
The **ripple channels** function, located at the top of the route display, allows consecutive channel routes to follow the routing of the current display incrementally. For example, Channels 1 to 8 direct outputs can be routed to Rack 1 > Line outs 1 to 8 respectively by routing Channel 1's direct out to Rack 1 > Line out 1 and allowing the **ripple channels** function to route Channels 2-8 automatically.

The number of channels to be rippled is defined either by selecting the appropriate grey numbered button, or by selecting the keyboard button to the right of the numbered buttons, typing the required number of channels (8 in the example above) into the numeric keypad which appears, and pressing **OK**. Once you have configured the **ripple channels** function, any routing action will also effect the appropriate number of channels above the channel being routed.

The **ripple channels** function treats stereo channels as two channels. In other words, if Channel 2 in the above example is stereo, the **ripple channels** function will route Channel 1 to Line out 1, Channel 2 Left and Right to Line outs 2 and 3, Channel 3 to Line out 4 etc.

1.9 Presets

Presets are used for storing and recalling settings for channels, fx units, graphic EQs and the matrix. While each preset functions slightly differently, this section provides a basic understanding of how to use the various preset displays:



Note that column widths can be adjusted by dragging their borders within the title row. To return all columns to their default widths, press RESET WIDTHS, in the top left-hand corner of the window.

The left-hand column of a preset display contains the available **group**s of presets, and touching one of these groups brings up the list of presets within that group in the column to its right (**name**). The columns to the right of the preset name displays the number of channels whose settings are included in the preset (**chs**) (Channel and Matrix presets only), the date and time it was created or updated (**notes**), and whether or not it is locked (**lock**).

Note that a presets display will only list presets of the relevant type.

To recall a preset, touch the name of the **group** containing the preset you wish to recall, and then touch the preset's name. The **recall scope** buttons at the bottom of the some preset displays allow you to select which elements are recalled and which elements remain unchanged. The buttons are included in the recall when they are lit.

To save the current settings as a new preset, touch the group in which you want the preset to be stored and press the **new** button. The new preset is automatically named according to the preset type. To alter the preset's name, type the new name using the keyboard display that appears (or the external keyboard) then, if relevant, touch and edit the number of channels' settings that you want to store in the preset (the default is one channel). Now touch **OK**.

Note that pressing CAN in the keyboard display will cancel the display but create the new preset with its default name.

To save the settings as an update of a previous preset, press **update**, touch the preset you wish to overwrite, and press **Yes** in the confirmation display which appears.

Note that when updating a previous preset, failing to press update will result in the preset you wish to overwrite being recalled, and the settings to be saved being lost.

To create a new group of presets, press **new group**. A new group will be created, called **group n**, where **n** is the next available preset group number. To alter the group's name, type the new name using the keyboard display that appears (or the external keyboard) and touch **OK**.

Note that pressing CAN in the keyboard display will cancel the display but create the new group with its default name.

The **edit name** button allows preset names and group names to be edited, and the preset to be locked, preventing them from being edited, overwritten, or deleted. The button lightens to indicate that it is active. To edit a preset's name, make sure the preset is unlocked (see below), activate the **edit name** button and touch the preset's name. Type the new name in the keyboard display and press **OK**. To edit a preset group name, activate the **edit name** button and touch the group name. Type the new name in the keyboard display and press **OK**.

To lock the preset, activate the **edit name** button and touch the preset's **lock** column. A grey padlock appears, indicating that the preset is now locked. Touching the lock again with **edit name** active unlocks the preset.

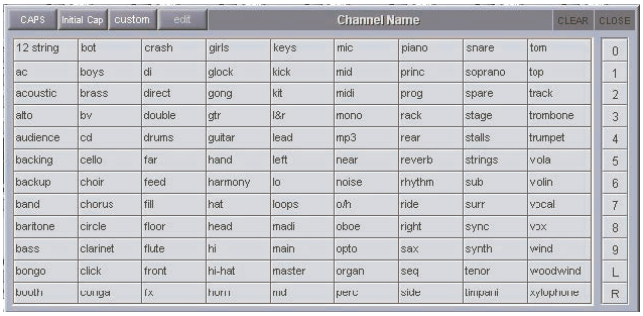
To delete a preset, press **delete**, touch the preset to be deleted, and press **confirm**. To delete a consecutive range of presets, press **delete** followed by **select range**, touch the first and last preset to be deleted and press **confirm**. To delete one preset, or a nonconsecutive range, touch each preset to be deleted and press **confirm**. To delete an entire group of presets, press **delete** followed by **select all**, then press **confirm**.

1.10 Naming Channels and Busses

A large number of elements within the SD5 can be custom named. Access to the naming facility is via black and white text boxes with down arrow and keyboard buttons to their right, such as shown here:

To create a name manually, touch the text box or the keyboard symbol to its right to bring up a QWERTY keyboard display. This keyboard includes standard **Caps**, **Shift** and **Del**ete functions, as well as **Cut**, **Copy** and **Paste** functions which can be used to move name text between channels. The arrow buttons in the bottom left-hand corner of the keyboard display move the cursor within the text box. Create the new name, either using the on-screen keyboard display or the external keyboard, and press **OK**. To close the keyboard display without changing the name, press **CAN**. To move the keyboard display to the following channel, press **Next** (or **TAB** on the external keyboard).

The **Channel Name** display enables commonly used words to be inserted quickly without the use of the keyboard. This facility is available not only when naming channels but also when naming other elements. To open the **Channel Name** display, touch the down arrow immediately to the right of the **Setup** display's channel name text box.


CAPS
Initial Cap
custom
edit
Channel Name
CLEAR
CLOSE
12 string bot crash girls keys mic piano snare tom 0
ac boys di glock kick mid princ soprano top 1
acoustic brass direct gong kit midi prog spare track 2
alto bv double gtr l&r mono rack stage trombone 3
audience cd drums guitar lead mp3 rear stalls trumpet 4
backing cello far hand left near reverb strings viola 5
backup choir feed harmony lo noise rhythm sub violin 6
band chorus fill hat loops o/h ride surr vocal 7
baritone circle floor head madi oboe right sync vox 8
bass clarinet flute hi main opto sax synth wind 9
bongo click front hi-hat master organ seq tenor woodwind L
booth conga fx horn mid perc side timpani xylophone R

Touching any word from the display inserts that word into the channel name text box. Further words can then be added to the channel name in the same way, divided by a single space. Numeric and L/R identifiers can be added from the column down the right-hand edge of the display. Text can be entered in CAPS or Initial Caps by pressing the **CAPS** and **Initial Cap** buttons in the top of the display. If neither of these are selected, all text is inserted in lower case.

> ***Note that the first text to be inserted from the Channel Name display when it is opened overwrites all previous text.***

> ***Note also that text that extends beyond the end of the text box will not be visible!***

In addition to the standard word set, a list of user-defined words can be created and inserted by pressing the **custom** button, located next to the **Initial Cap** button. The button lightens to indicate that the custom set is displayed.

To add a new word to the custom set, touch the box which you want to use and press **edit**, located next to the **custom** button, to bring up a QWERTY keyboard display. Type the required word and press **OK**. In this keyboard display, the **Next** button saves any text inserted in the current box and moves the keyboard to the next box in the custom list. To cancel the keyboard display, press **CAN** within the display, or press **edit** again. The words in the custom list are inserted into the channel name text box in exactly the same way as words in the standard list. Pressing **custom** again returns the display to the standard word set.

> ***Tip: As custom names appear in the box in which they are typed, they are not automatically alphabetised. The user may find it helpful to define a system for ordering the custom page.***

> ***Note also that the standard word set cannot be edited.***

The current name can be cleared by touching the **CLEAR** button towards the top right-hand corner of the **Channel Name** display. The **Channel Name** display can be closed by touching the **CLOSE** box, in the top right-hand corner.

1.11 Channel Processing

1.11.1 Dynamic EQ .....

The EQ section comprises four user-configurable parametric filters with Dynamic Control for up to 24 Channels and a pair of swept High-pass and Low-pass filters.

The EQ is accessed by touching the on screen display to **Assign** the channel (**the colour changes to yellow**) and then using the controls on the right hand side of the input module.

When a control is adjusted the expanded view seen below appears on the screen. This view can be seen at any time by touching the EQ response graph on the screen.

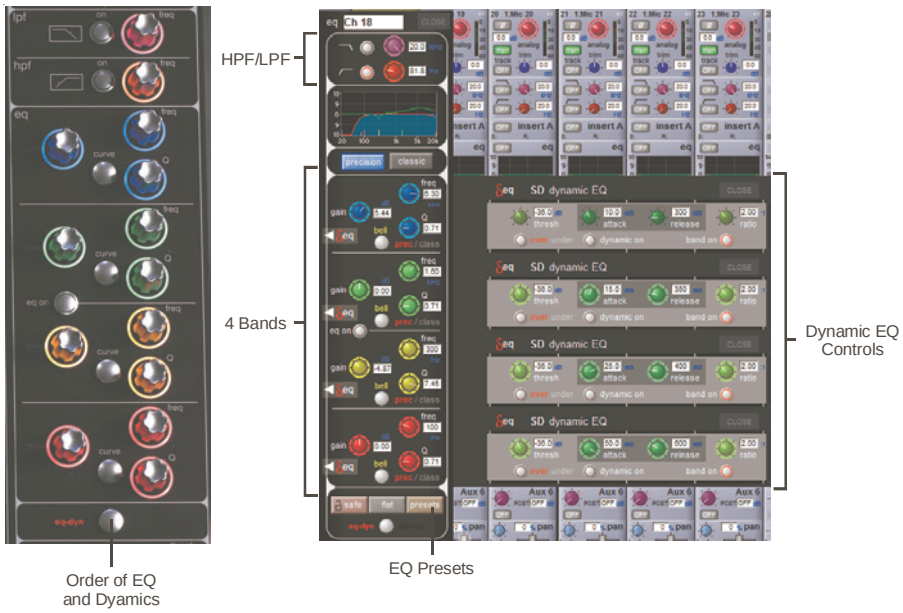
NOTE: If the expanded view does not appear when a control is adjusted open the Options panel and set the Auto Expand EQ option to Yes

Each band's response can have one of two characters – precision and classic. These can be switched for all bands using the **precision** and **classic** buttons, or on individual bands using the 2nd function of the **bell/hishelf** buttons.

To access the Dynamic control, touch the left arrow symbol on any EQ band.

Touching the normal EQ response graph will show an expanded view in a separate panel.

The order of EQ and Dynamics in the channel signal path can be changed using the worksurface button at the bottom of the EQ section.



Note: The type of filter used by each band can be changed by successive presses of the Curve button for that band.

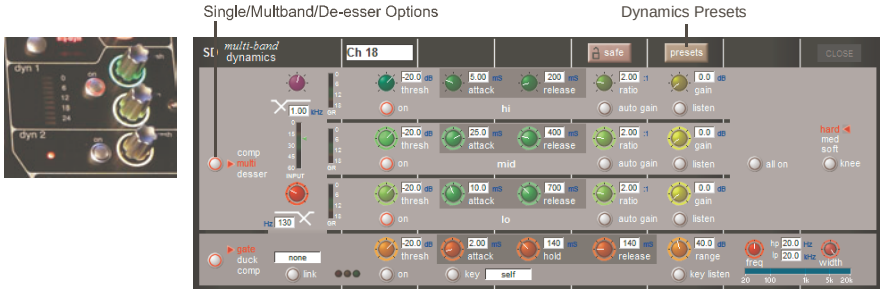
1.11.2 Multiband Dynamics .....

The dynamics are accessed by touching the words **Comp** or **Gate** just below the EQ graph on screen to open the dynamics panel.

There are two dynamics modules, the first of which can function as a simple compressor, a 3 way multiband compressor, or a de-esser, according to the **comp/multi/desser** button to its left. The second (lower) module can function as a gate, a ducker or a compressor with an external sidechain, according to the **gate/duck/comp** button to its left.

The worksurface controls beneath the screen control the various parameters. Touching the **Close** button in the top right corner of the panel will close it.

Dedicated **Threshold, Gain** controls and **In/Out** switches can be found on the right hand side of that section's worksurface. These can control the Assigned channel's dynamics whether the on screen dynamics panel is open or not.

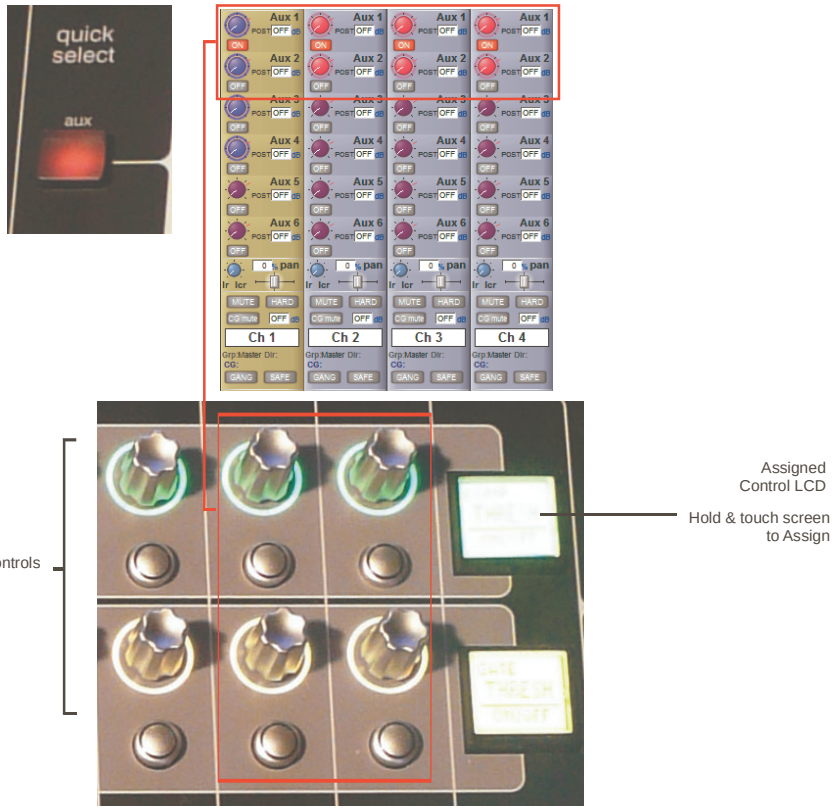


The **Assignable encoders and switches** beneath the screen can be assigned to any of the main dynamics controls. Hold the **Assign Switch** button on the left of the input section and touch the dynamics control required on the screen. The selected control is shown by the **Status Display.**

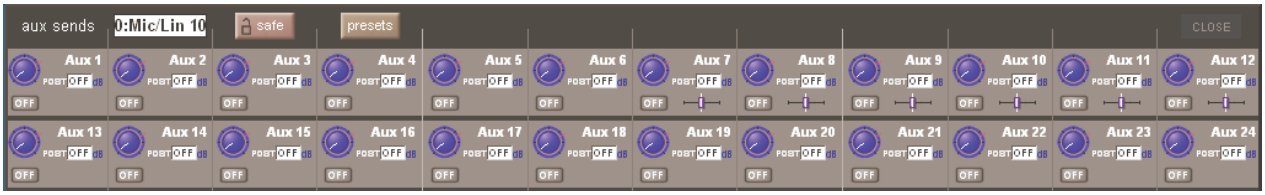
1.11.3 Auxiliaries .....

The auxiliaries can be accessed by pressing the **Quick Select Aux button** and touching the auxiliary row on screen or using the **Screen Scroll** buttons on the left of the worksurface

Using either of these methods, the highlighted auxiliaries on the input screen will change. The rotary controls and switches beneath the screen are used as auxiliary sends, pans (with 2nd Function ON), On/Off and pre/post switches (with 2nd Function ON).



It is also possible to show all of the aux sends for a channel in a single display and assign them to the 24 rotaries beneath the screen. This is done by touching the currently assigned aux row on the screen for the channel that you want to display. The layout of the display indicates which encoder each aux is assigned to; if there are more that 24 sends, the assignments becomes scrollable using the **Screen Scroll** function.

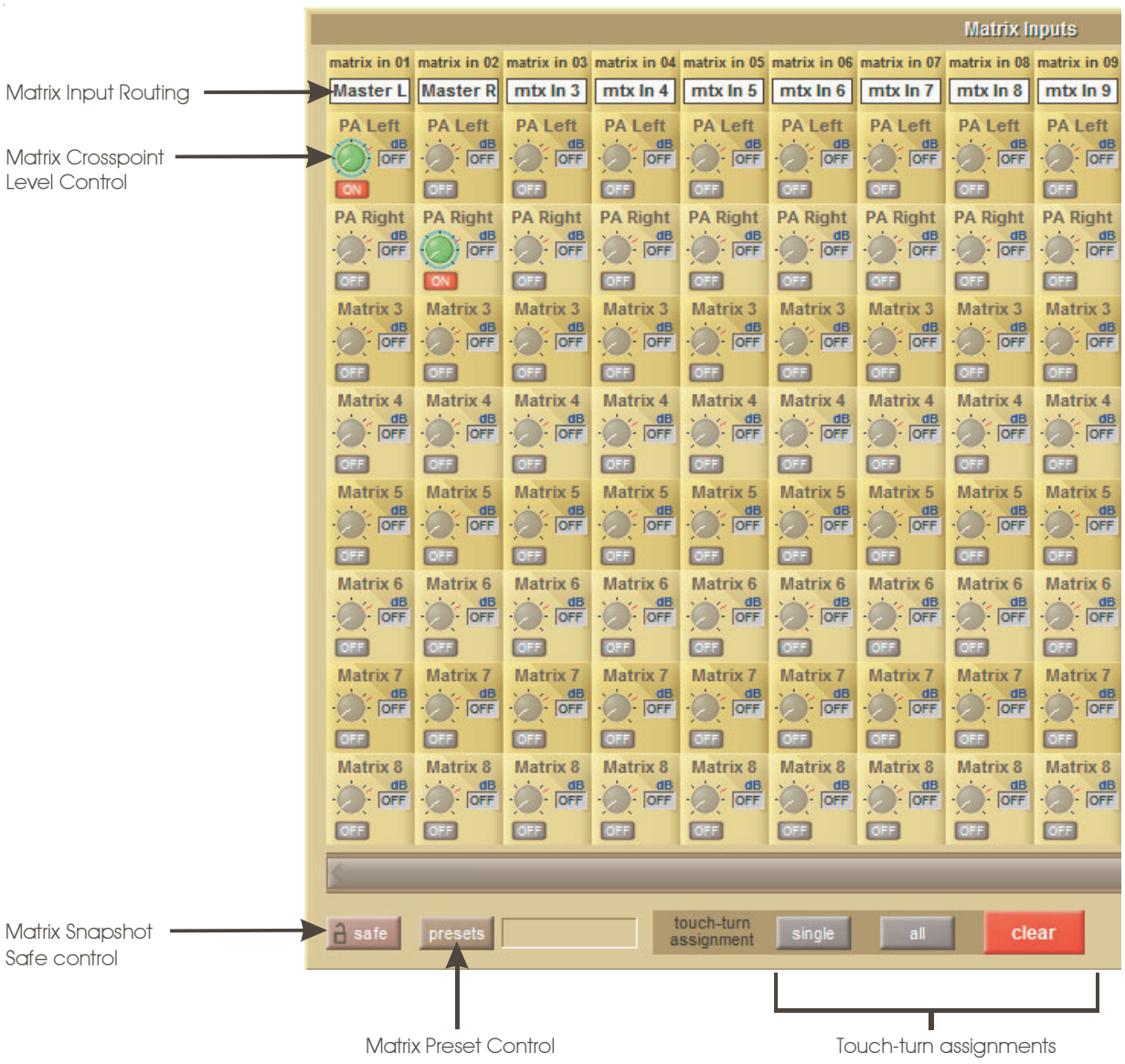


Once you have adjusted the auxes in this display, you need to close it manually before opening any other channel detail display.

1.12 The Matrix

To open the Matrix Inputs panel, touch the **Matrix** button on the Master Screen. The window that opens allow you to route inputs to the Matrix Output Channels, and set the Matrix crosspoint levels.

To route an input, touch the top of the appropriate Matrix column. This opens a standard SD5 input routing page.



The example above has the Master Stereo Buss routed to the inputs of Matrix 1 and Matrix 2 (Labelled as **PA Left** & **PA Right**). By adjusting the crosspoint levels, you can change how much of each side of the Master buss is fed to these Matrix Channels.

There are three modes of level adjustment: multi, single and all.

Multi (active when no other mode is selected): Touch one or more level “knob” on screen, then adjust using the Touchturn control.

Single : Touch any level “knob” and adjust. Touching another “knob” will deselect the first.

All : All “knobs” are adjusted at the same time.

When adjusting more than one crosspoint, their relative levels are maintained.

The **clear** button cancels all active Touchturn assignments.

1.13 Control Groups

Any number of input channels and output channels can be connected to one or more of the 24 possible Control Groups. They can then all be operated from a single worksurface control. Changes to the Control Group fader, mute or solo or controls will affect all channels connected to the group.

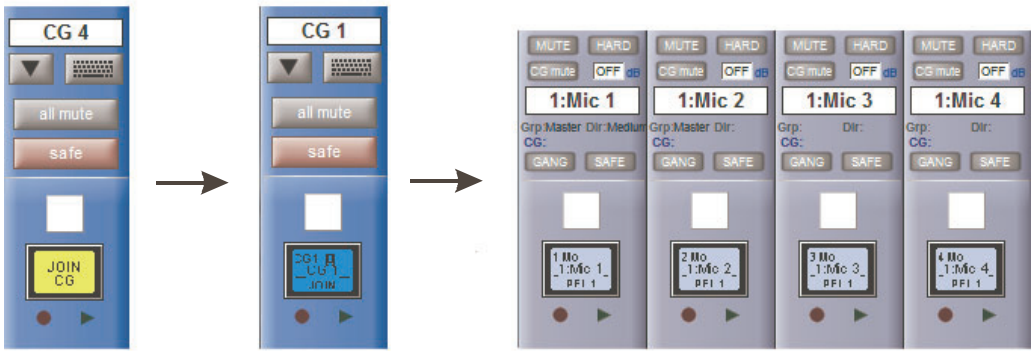
There are 2 methods to set up Control Groups:

1) Press the **LCD Function** button on the CG fader bank followed by the **JOIN CG** button;

Press the channel select button for the CG that you want to use;

Press the channel select buttons for each of the channels to be included in the CG;

Deselect the **JOIN CG** button:



Press LCD Function Button then JOIN CG

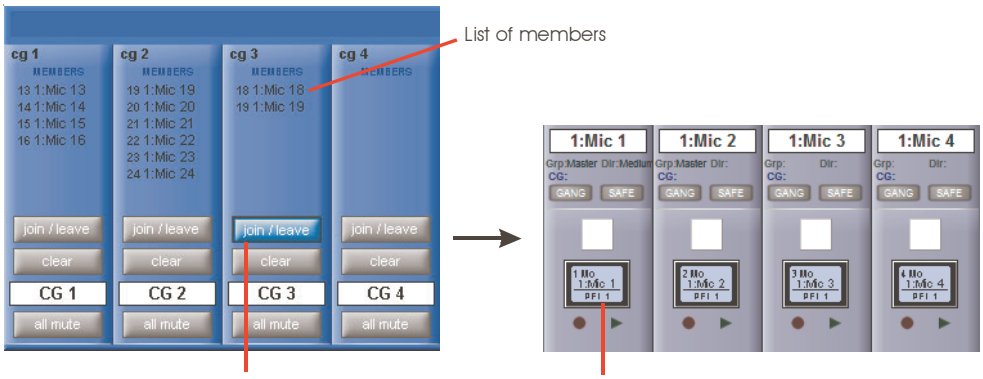
Select Control Group to join

Press Channel LCD Buttons to assign members

2) Press the on screen **JOIN/LEAVE** button for the required CG channel;

Press the channel select buttons for each of the channels that you want to make members of the CG;

Release the **JOIN/LEAVE** button:



Press Join/Leave button on required CG channel

Press Channel LCD buttons to assign members

A list of all the connected channels and their names is displayed above each Control Group display.

You can also clear all the channels from a Control Group by pressing **Clear**.

When a channel is a member of a Control Group, its own controls can still be adjusted independently of the other Group members. Adjustments to fader levels are transmitted to the Group members as dB changes, so that a level increase of 2dB on the Group fader will increase all the member levels by 2dB, irrespective of the relative levels of the individual channel faders.

CG Mutes are treated as “in series” where a channel is a member of more than one group. All CG mutes must be off for a channel to be unmuted; any CG muted always mutes all of its members.

If a channel is CG muted by single or multiple CGs, the worksurface channel mute button will override all CG mutes for that channel. The channel will not however be removed from CG membership so if the relevant CG is muted again, the channel will also be muted.

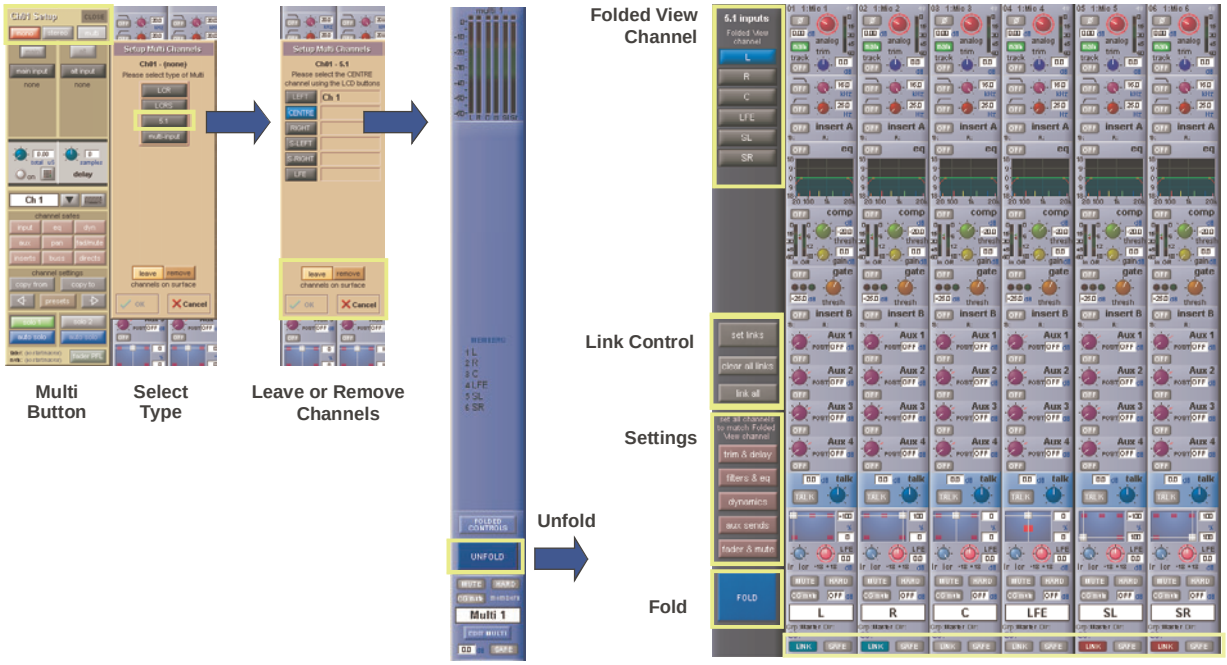
1.14 Multi-channel formats

If you are working in Surround, or using another multi-channel format, you can create LCR, LCRS and 5.1 busses in the Session Structure window described in Section 1.5.1.

Multi-channel inputs are controlled by routing each component through a mono channel and then linking those channels via a 'Multi' channel. To start with, use the normal input and output routing procedures to route each component through a channel. Then open the Setup display for the first component, and select **Multi** at the top, to open the **Setup Multi Channels** display. Select the format – **LCR, LCRS, 5.1** or **multi-input** (which allows you up to 11 components) – and then press the LCD buttons for the remaining component channels, working down the displayed list in order. Channel names will appear against each component. Each channel can then be left on the worksurface or removed using the buttons towards the base of the display. Finally, touch **OK** to close the display to link the channels together.

Note that you can also create Multis on a blank layer by selecting the Create Multi LCD function on the Layer you wish to use, then pressing the LCD button for the required channel strip.

The included channels are shown in the Multi channel strip. Touching the **Folded Controls** button allows you to control which channel elements are displayed in the folded channel strip – each element affects all linked components.



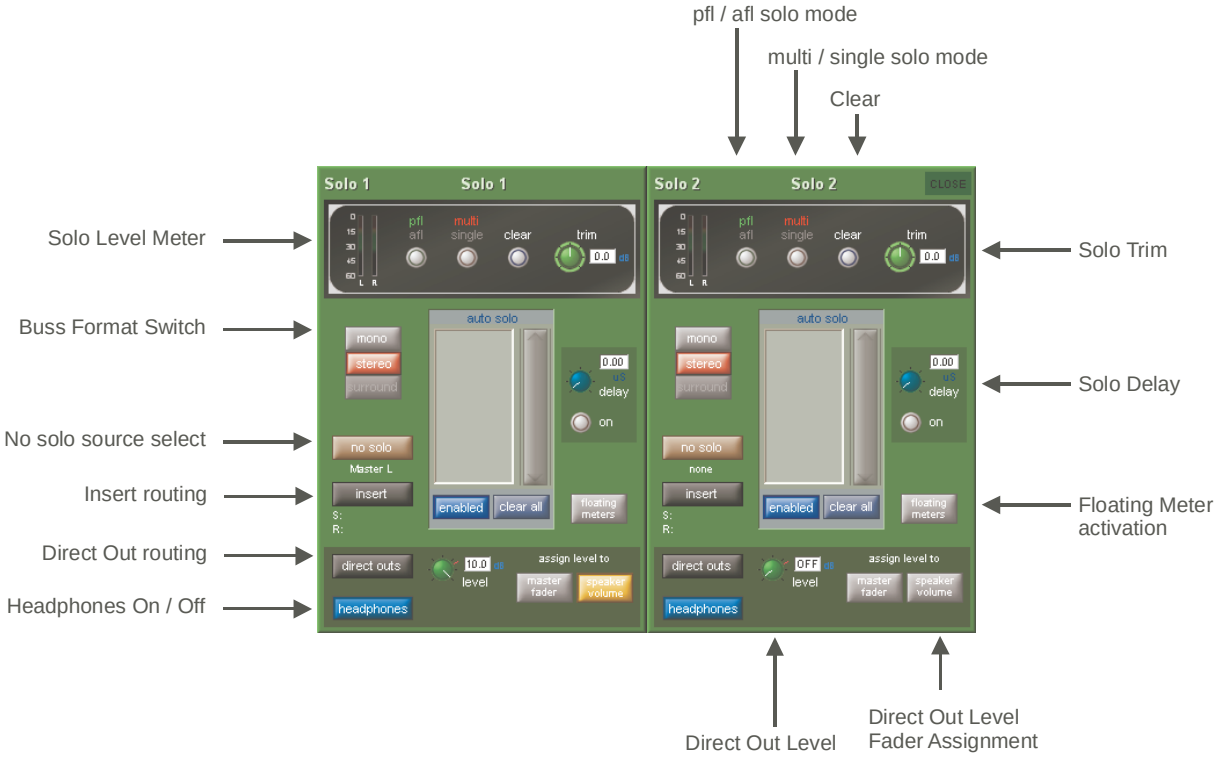
If the **Unfold** button in the Multi or in a multi-channel buss channel strip is pressed, the component channels will be displayed, and more detailed configuration can be made.

See Section 2 for more detailed descriptions of using Multi channels.

1.15 Solo Setup

The SD5 Solo panel is accessed from a button at the top of the Master Screen. Some of the controls on this panel are duplicated on the worksurface, immediately above the Master Screen.

There are two solo busses and each solo button on the console can be independently assigned to use Solo1, Solo2 or Solo 1+2. Therefore, if the console was being used for Stage monitors, the first solo buss could feed “In-Ear” monitors, and the second solo buss could feed a wedge.



The following functions are available independently for each solo buss :

- **Mono** / **Stereo** / **Surround** Switch
- **No Solo** source routing: The source for solo buss when no channel is in solo mode.
  Note that the No Solo source does not show on Solo meters
- **Insert** Point with both internal and external routing capability
- **Direct Out** routing (eg. for feeding a wedge)
- Assignment of Direct Out level control to master fader or speaker volume pot
- **afl** or **pfl** mode
- **single** or **multi** solo mode
- **Delay**
- Level **Trim**
- **Auto solo** mode: If a channel is set to **Auto Solo**, it will automatically solo when another channel is soloed. The **Auto Solo** function of each solo buss can be enabled and disabled as required.
- **Solo meters** can be displayed on the Master or Overview screen by pressing the **floating meters** button below the solo **delay** area in either side of the **Solo** panel.

SD5 Operation Manual

Chapter 2:

Channel Types and Functions

2.1 Introduction to Channel Types

This chapter describes all of the functions available within the SD5's channel strips. The first two parts of the chapter will examine the Input/Setup and Output sections of each of the types of channel strip, and the third part will cover the in-channel signal processing, which functions in precisely the same way on each channel type. Those elements which are common to each channel type are dealt with first, and then those elements which are specific to a channel type are dealt with separately.

In order to understand this chapter, you will find it helpful to have read Chapter 1 (Getting Started).

2.2 Channel Input Setup - Common Elements

2.2.1 Channel Strip Input Area .....

The channel strip input section is located at the top of the channel strip (shown below for an Input channel). This is where the channel inputs, snapshot safes, and solo bus feeds are configured. Some basic controls are displayed in the channel strip. However, most of the input parameters are contained in the channel **Setup** display, accessed by touching the channel's input or filters areas at the top of the screen. The **Setup** display also contains a number of channel configuration elements.

Note that channels without an external input selected display a simpler input section than that shown here. Note also that input channels can display a channel meter which hides the input and filters sections of the channel strip. Press the 'assign' down button to close the meter view. (See Section 2.4 for more details)

To control the input level, press the **Quick Select Gain** button and use the encoders immediately below the channel strip. For Input channels which have ADC's assigned to their inputs, this remotely controls the analogue gain of the mic pre-amp in the I/O rack. For all other input types, this is a digital level trim. The gain value is displayed to the right of the level pot.

Below the encoder there is button which will control polarity of Gain Tracking On/Off according to the Screen Scroll position.

2.2.3 Channel Delays .....

In output channels, the lower half of the channel strip input area contains the input delay controls: The delay is switched on using the on/off button on below the on screen total delay readout. The button turns red to indicate that the delay is active. The small pot to its right determines the course delay amount, and the current course delay value is displayed above the on/off switch. The channel's topmost encoder can be assigned to the delay pot using the **rotary assign** scrollers to the left of the encoders.

Further delay controls are found below the input routing area of the **Setup** display. As the lower half of an Input channel strip input area is used for trim and track controls, their delays are controlled entirely via this display. The delay can be switched on using the **on** button, which is ringed in red to indicate that it is on. The left-hand blue pot controls the course delay amount in milliseconds. The right-hand blue pot enables fine adjustments to be made to this amount, measured in samples. Both pots can be assigned to gain encoders using the **assign** scrollers to the right of the encoders, in which case each pot is assigned to the encoder above it.

Note: This will normally mean that the course pot is assigned to the Assigned channel's gain encoder and the fine pot is assigned to the next channel's encoder. If, however, the Assigned channel is channel 12, the course pot is assigned to the previous channel's encoder and the fine pot is assigned to the Assigned channel's encoder.

It is also possible to enter a specific delay amount using a numeric keypad. To do this, touch the keypad symbol to the right of the delay on button in the **Setup** display, select the desired units from the buttons to the right of the number buttons (**seconds, feet, metres** or **bpm**) enter to amount using the keypad, and press **OK**.

Note that altering the delay units in this keypad display will change them wherever they appear console.

2.2.2 DiGiTube .....

The **digitube** area of the Channel Setup panel allows for the emulation of the non-linearities of a valve amplifier: At low levels the valve is almost linear and at high levels the valve starts to compress and exhibits “soft clipping.”

Click the **on** button to activate. The **drive** control increases the gain into the valve and automatically reduces the output gain so that the volume stays the same (like gain tracking); the indicator shows how hard you are driving the valve and hence how much distortion is being introduced.

The **bias** control sets the symmetry of the distortion: At 0 the distortion is symmetrical and produces largely 2nd harmonic (and even) distortions; as the **bias** is increased, the distortion becomes more and more asymmetrical and starts adding 3rd (and odd) harmonic distortions. In effect, the **bias** controls the characteristics of the distortion; a lower bias produces a softer distortion, whereas as higher bias produces a harder distortion.

The **warmth** control (which is hidden if the **on** button is pressed) switches DIGItube on, sets it to its default settings, and hides the rest of the controls.

2.2.3 Channel Names.....

The black and white text box in the **Setup** display is used for naming the channel. Channel names are displayed in the scribble strip at the bottom of the screen. By default, the channel is given the same name as the selected input signal.

Note that if no input signal is selected, the scribble strip simply displays the channel number, prefixed by **ch** for Input channels, and prefixed by **Aux**, **Grp** or **Matrix** in the case of output channels.

The following notes are specific to naming channels:

The **Next** button moves the entire **Setup** display to the new channel.

At the very top of the channel, the channel number and input signal name are displayed for Input channels, and the channel type and number are displayed for output channels. These labels remain unchanged, regardless of any channel naming.

For Input channels, note that if the channel input signal is changed once a channel has been manually named, the channel name will no longer follow the input signal name. To reactivate the automatic channel naming function, clear the name and re-select the channel input.

Note also that the channel **Output** display also provides access to this channel naming facility.

Channels can also be named directly in the **Channel List** display (in the **Layout** menu). Open the display, activate the **Edit** function below the list, and expand the required channel type list by touching its row. Touching the **channel name** column for any channel in the list will cause a keyboard pop-up to appear, where a name can be typed in the usual way.

2.2.4 Channel Safes.....

The **Channel Safes** area of the **Setup** display defines which parts of the channel will be not be affected when snapshots are recalled to this channel.

Note that the above diagram displays the Input channel safes. Output channels display a smaller list of available channel safes.

Select whichever parts of the channel you want to protect in this way by touching the appropriate button. To cancel a safe, press the relevant button again. The buttons turn red to indicate that they are safed. The presence of safes within the channel is also indicated by the label of the appropriate channel part turning red and the background colour of that channel’s name also turning red.

The EQ and dynamics settings can also be safed and unsafed from within the **eq** and **dynamics** displays. The whole channel can also be safed and unsafed by pressing the **SAFE** button at the bottom of on-screen channel (offline software), or the **full safe** LCD button found towards the bottom right-hand corner of the channel worksurface controls. It is grey to indicate that some elements of the channel are not safed, and red to indicate that the entire channel is safed.

Channel elements which have been safed are indicated by their text displaying red in the channel strip.

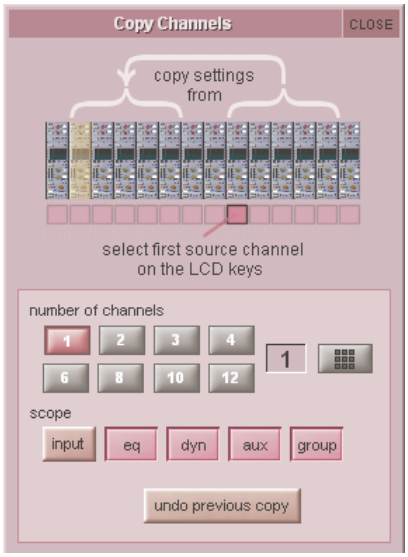
Tip: When some elements of the channel are safed, a double-press on the SAFE button can be used to quickly clear all channel safes.

Note: Channel safes refer specifically to snapshot recalls and do not protect channel settings when using the copy from, copy to and presets functions described below.

2.2.5 Channel Settings .....

The **Channel Settings** area of the **Setup** display allow channel settings to be copied between channels. The left and right arrow buttons are used to move the **Setup** display to adjacent channels and are also found on the console worksurface..

The **copy from** button allows settings to be copied from other channels to this channel and those to its right: Pressing **copy from** opens up a **Copy Channels** display:

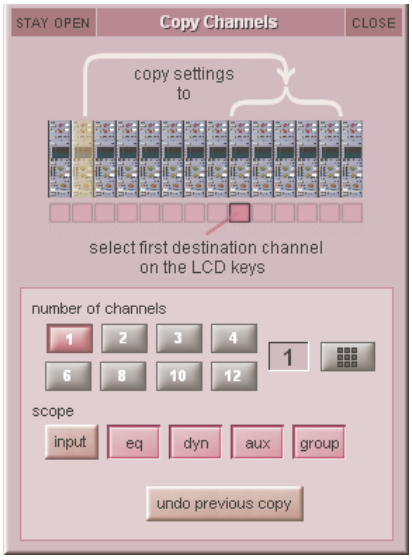


The extent of the channel settings to be copied is selected using the **scope** buttons towards the bottom of the display. Each button lightens to indicate that it is included in the copy function. The number of source channels to be copied is defined either by selecting the appropriate grey numbered button, or by selecting the keypad button to the right of the numbered buttons, typing the required number of source channels into the numeric keypad which appears, and pressing **OK**. Press the LCD button (shown below) on the left-most source channel in order to action the channel copy. If more than one source channel has been selected, the settings of appropriate number of channels to the right of the source channel will copy to the channels to the right of the destination channel (The current Assigned channel).

For example, to copy the EQ settings on channels 1-8 to channels 9-16 respectively:

- Make channel 9 the Assigned channel and touch **copy from**
- In the scope area of the **Copy Channels** display, select only the **eq** button
- Set the **number of channels** to be **8**.
- Press the LCD button on channel 1.

The **copy to** button allows settings to be copied from this channel to other channels: Pressing **copy to** opens up a **Copy Channels** display:



Note that this is a different** Copy Channels **display from that opened by the** copy from **button.

The extent of the channel settings to be copied is selected using the **scope** buttons towards the bottom of the display. Each button lightens to indicate that it is included in the copy function. The number of destination channels to which this channel's settings will be copied is defined either by selecting the appropriate grey numbered button, or by selecting the button to the right of the numbered buttons, typing the required number of source channels into the numeric keypad which appears, and pressing **OK**. Press the LCD button (shown above) on the left-most destination channel in order to action the channel copy. If more than one destination channel has been selected, the settings of the source channel will copy to the appropriate number of channels to the right of the selected destination channel.

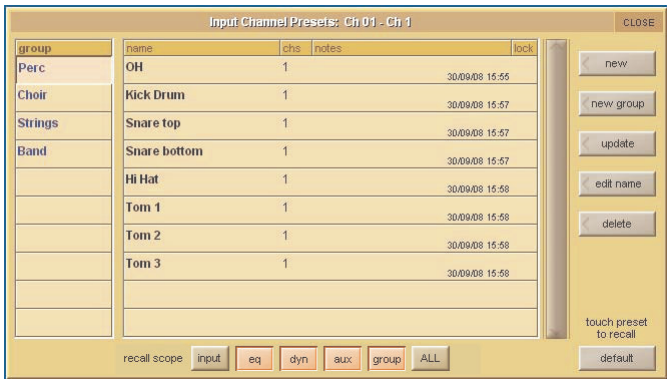
For example, to copy the EQ settings on channel 1 to channels 9-16:

- Make channel 1 the Assigned channel and touch **copy to**
- In the scope area of the **Copy Channels** display, select only the **eq** button
- Set the **number of channels** to be **8**.
- Press the LCD button on channel 9.

If a **copy from** or **copy to** function is actioned by mistake, it can be undone by pressing the **undo previous copy** button in the current **Copy Channels** display.

Tip: Use copy to for copying one channel's settings to a number of other channels; Use copy from to copy the settings of a group of channels to another group of channels.

Pressing the **presets** button opens the **Presets** display. The basic functions of a Preset display are described in the Getting Started section.



Note that presets are specific to a channel type: The Presets display will only list those presets which apply to the current channel type.

To reset the channel to the default settings, press **default**.

2.2.6 Channel Solos

The SD5 has two solo busses, and each channel can be assigned to **solo 1**, **solo 2** or both **solo 1** and **2**. If the console was being used for Stage monitors, this would allow, for example, the first solo buss to feed In-Ear monitors and the second solo buss to feed a wedge.

Note: The solo busses are configured in the master solo displays, accessed by pressing the Solos button at the top of the Master Screen.

The channel's solo routing is assigned in the section at the bottom section of the channel Setup display. Pressing the green **solo 1** and **solo 2** buttons enables the channel to be routed to solo busses 1 and 2 respectively. The buttons are green to indicate that the solo bus is available, and grey to indicate that it isn't.

Note that each channel must be enabled for at least one solo buss.

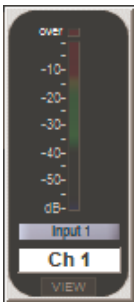
When the blue **auto solo** buttons are active (indicated by white, rather than grey, text), that channel is automatically routed to that solo bus whenever another channel is soloed to that buss.

Note that a list of channels with auto solo enabled is displayed in the auto solo section of the master solo display. The auto solo function has to be activated by pressing the blue enabled button below the auto solo list in the master solo display.

Tip: If you are using effects returns, selecting auto solo can allow soloed tracks to be auditioned with their effects returns.

2.2.7 Screen Channel Metering

It is possible to permanently display any channel's meter in the Master or Overview Screens for up to 12 channels. Each meter display remains active regardless of whether or not the channel itself is currently on the worksurface. Meters are activated individually via the **Channel List** display, opened by pressing the **Layout / Channel List** button. To select a channel for screen metering, expand the relevant channel type in the list using the arrow to its left, then touch in a channel's **meter** box. Pressing the **View** button at the bottom of any of these meters also allows them to be snapped to a grid, sized to either large or small, removed, and moved between the Master screen and Overview screen.



Meter sources are defined in the Options menu, described in Section 3.

2.3 Channel Output and Inserts - Common Elements

2.3.1 Channel Strip Output Area.....

The channel strip output area makes up the lower half of the Channel Strip panel (shown below for an input channel). This is where the channel output routes are configured (including Aux outputs in the case of Input channels).

Each channel also has two inserts: insert A and insert B. Both inserts follow the format (mono or stereo) of their channel. The channel strip insert areas are located above the **eq** section (**insert A**) and below the **gate** section (**insert B**), and their signals are sent and returned to that position within the signal path: **insert A** is pre-signal processing (but post filters), and **insert B** is post signal-processing.

> ***Note that Multi channels do not have their own insert controls – each multi-channel component's insert points are configured individually.***

Some basic output and insert functions are found in the channel strip. However, most of the output and insert parameters are contained in the channel **Output** display, accessed by touching the channel's output or insert areas or.

> ***Note that on Input channels, an aux display is opened by touching the aux area. To open the Output display, touch in the muting and naming area below the pan control.***

> ***Note that if there are any multi-channel busses in the Session Structure, the pan display will be different from that shown above.***

For all output channel types, there is a channel meter displayed in the channel strip. For Input channels, this part of the channel strip contains the aux outputs, as shown above. On stereo and multi-channel format channels, symbols below each meter indicates which component is displayed. LFE channels are indicated by a small box with a dot in it.

> ***Note that input channels can display a meter in the top section of the channel strip – see Section 2. Meter sources are defined in the Options menu, described in Section 3.***

Below the meters section of output channels, there is an **fx output** button. This button brings up either the controller display for the effects preset that has been assigned, or the **fx Presets** display if no preset has been assigned.

> ***Note that below the aux section of an Input channel, there is a pan control in place of the fx output button. When an effects preset has been assigned to that channel's Direct Out, touching this pan control brings up the FX preset controller display.***

Towards the bottom of the channel strip there is a scribble strip of black and white text boxes displaying the channel names.

> ***Note that the channel naming facility is found in both the channel Setup and Outputs displays.***

Below the channel name, there is indication of the lowest group (**Grp:**) output (along with indication of the lowest direct output (**Dir:**) in the case of Input channels), and indication of any control group (**CG:**) to which the channel belongs.

The on-screen channel has **MUTE** and **HARD** indicators located above the scribble strip. Pressing the worksurface **MUTE** button (above the LCD button) silences all outputs from the channel apart from any which have been assigned pre-mute (this option is available for auxes and direct outs). Pressing the worksurface **2nd Function** button to activate the **HARD** mute silences all outputs from the channel, including those which are assigned pre-mute.

Immediately below the **HARD** button, there is a numeric display of the channel's main fader value in dB. Below the **MUTE** button there is a **CG MUTE Indicator** which shows when the channel is muted as the result of its membership of a muted **Control Group**. At in the bottom left-hand corner of the channel strip, there is a **GANG** display. To the right of the **GANG** button there is a **SAFE** button. This indicates the Safe status of the channel.

2.3.2 Channel Strip Insert Areas .....

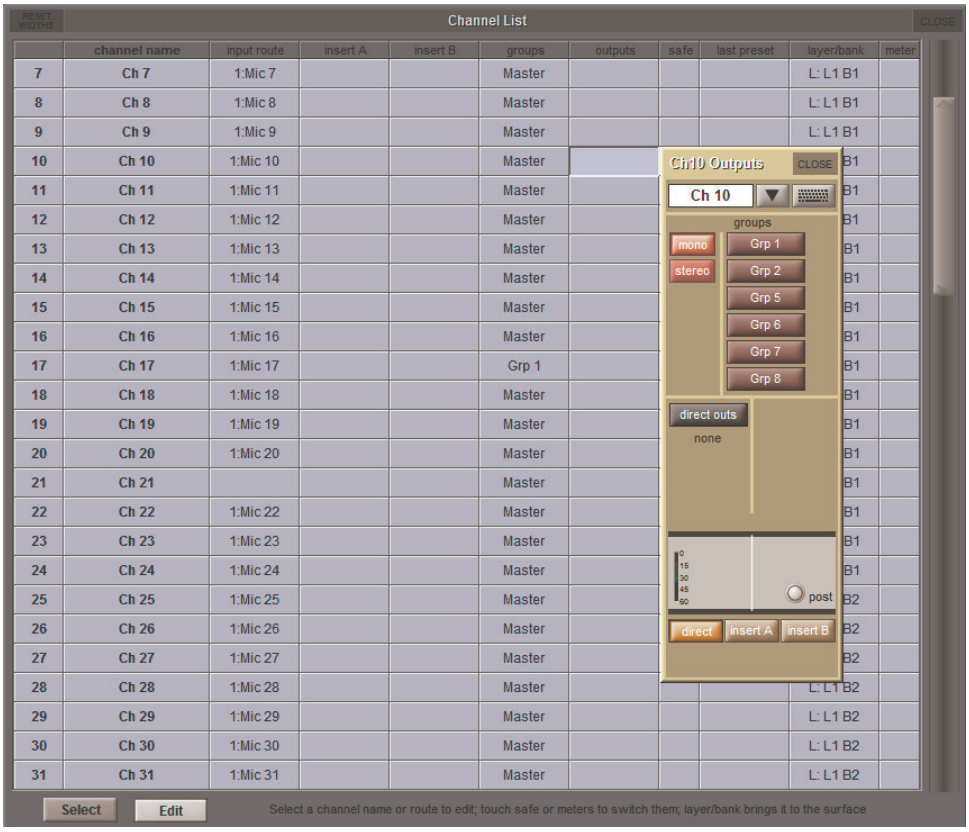
Both channel strip insert areas include a button for switching that insert send on and off. The button is grey when the send is off, and red when it is on.

Below the on/off button, there is a display of the current insert routing. The send route is displayed on the left, prefixed by **S:**, and the return route is displayed on the right, prefixed by **R:**. If no routing has been selected, these areas are blank apart from these prefixes. If the channel is stereo, only the left side of the insert routing is displayed.

2.3.3 Console Output and Insert Routing .....

The **Output** displays for all four channel types allow direct routing either to the external IO racks, or to one of a variety of internal locations, for both the channel's main output (or direct output in the case of Input channels), and its insert send and return.

In addition to touching inside the output area of the channel strip, it is also possible to open each channel's **Outputs** display from the **Channel Lists** display, opened from the Master Screen's **Layout** menu: Activate the **Edit** button at the base of the display, expand the required channel type by touching its entry in the list, then touch the output column within the required channel row. An outputs display will open within the Master Screen:



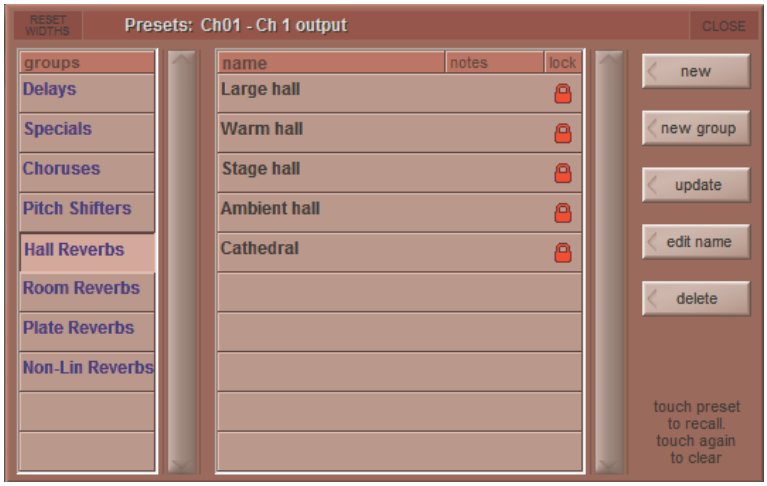
Towards the bottom of the **Outputs** display, there are three buttons marked **output** (**direct** in Input channels), **insert A** and **insert B**. Selecting one of these buttons assigns that send (or send and return) to the signal routing area above it: When either insert is assigned, the **ins A send** or **ins B send** routing button appears in the left-hand column, and the **ins A return** or **ins B return** routing button in the right-hand column; When the output (direct output in Input channels) is assigned, the **outputs** (**direct outs** in Input channels) routing button appears in the left-hand column and the right-hand column is left blank. Pressing any of these routing buttons opens a routing display.

An extra button labelled **send+return** is included above the **ports** list in the **Insert Send Route** display button. When this button is activated, the send and return routing is linked for all signals within the **INTERNAL** port: If the **Graphic 1** input is assigned to the insert send, the **Graphic 1** output is automatically assigned to that insert return. Similarly, if it is the return which is manually assigned, the send automatically copies that send assignment. The **send+return** button is grey when inactive and brown when active.

The **mono > mono** and **mono > stereo** buttons are used when routing a mono channel to internal fx units and Waves plug-ins (where available). When **mono > mono** is selected, the channel signal is routed to left side of an fx unit, or to a mono Waves rack input. When **mono > stereo** is selected, the channel is routed to both sides of the fx unit or Waves rack.

2.3.4 FX Presets .....

Each channel output or insert send can be sent to an internal FX Unit. Pressing the **fx presets** button at the bottom of the **Outputs** display brings up the **fx Presets** display. The fx preset is applied to whichever channel output is active in the **Outputs** display when the **fx presets** button is pressed: the main channel output (or direct output), insert send A or insert send B:



Note that column widths can be adjusted by dragging their borders within the title row. To return all columns to their default widths, press RESET WIDTHS, in the top left-hand corner of the window.

The basic functions of Preset displays are described in the Getting Started Chapter. Functions specific to fx presets are described below.

A number of factory presets are provided, and these provide the basis for any user-adjusted presets. Factory presets are indicated by the presence of a red padlock in the **lock** column on the right, and are described below. These include stereo FPGA reverbs and other effects such as delays, choruses, pitch shifters and audio enhancers.

Once an effects preset has been adjusted, it can be saved, either as a new preset or as an updated version of the preset that has already been created, to prevent the changes from being lost:

To lock the preset, activate the **edit name** button and touch the preset's **lock** column. A grey padlock appears, indicating that the preset is now locked. Touching the lock again with **edit name** active unlocks the preset. All master presets are locked and cannot be unlocked. Master presets can be distinguished from user presets by the red colour of their padlocks.

Note - that factory preset group names can be edited, even though the presets themselves cannot.

Once an effects preset has been assigned, the **fx output** button in the channel strip recalls the preset's controller display. In the case of Input channels, once an effects preset has been assigned, the preset's display can be recalled by touching the pan area of the channel strip. The **fx Presets** display can then be recalled by pressing the **fx presets** button within the controller display.

Each FX unit can be safed by pressing the **safe** button at the top of its display. The channel's name and output are also shown at the top of the display, and each effect displays its input and output levels in meters in the left-hand side of the controller.

Note - On SD5 up to 24 Stereo effects can be used at any one time - this total can include up to 16 Stereo Reverbs.

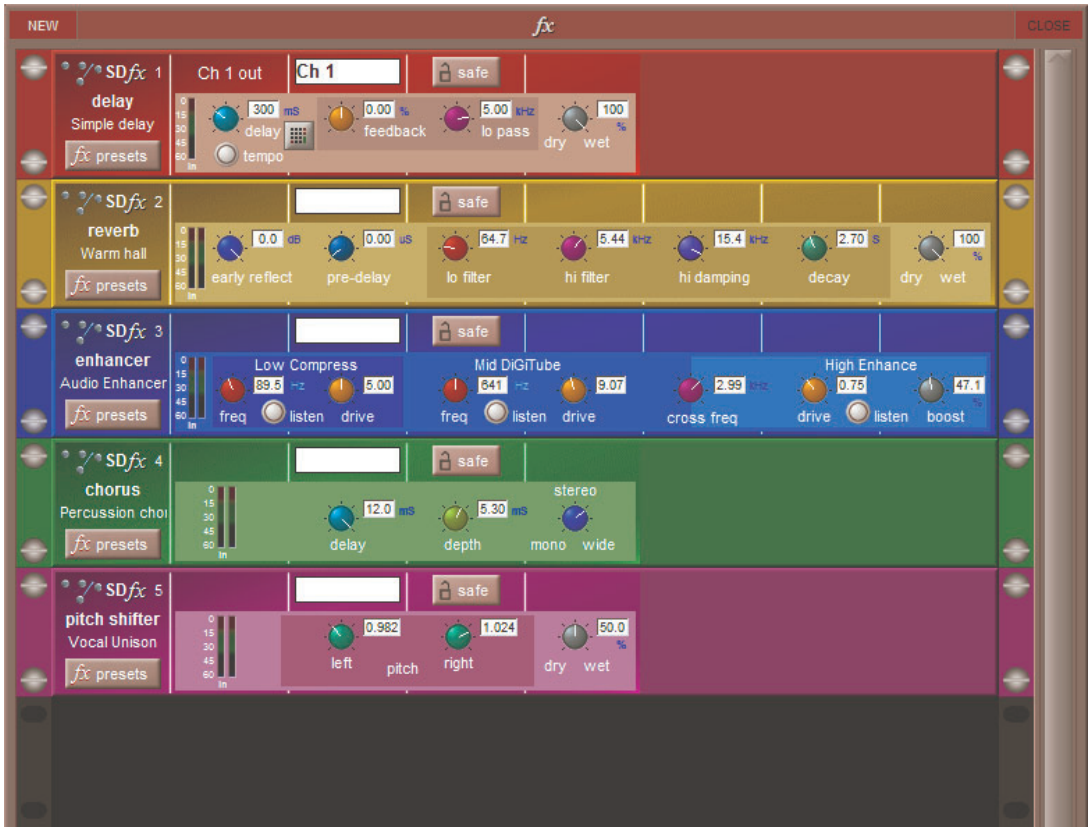
Note - If Presets are greyed out in the presets list this means that the maximum number of Presets has already been used

When an fx unit is open in a channel screen, its controls are assigned to the assignable encoders below the screen. Each value is displayed to the right of its pot.

To delete a module, simply deselect it within the presets display.

The Master FX Display

Selecting the **fx** menu button in the master screen opens the master **fx** display, which shows all of the currently assigned fx units in a single rack. Touching any control in this display allows adjustments to be made using the worksurface **Touch Turn** controls.



It is also possible to create and delete modules from this display:

To create a new module, click on the **New** button in the top left-hand corner of the fx window to bring up the **fx Presets** display, then select the appropriate preset in the usual way. Routing to fx modules is then performed in the channel **Outputs** display.

To delete a module, click on the **fx presets** button on the module, and deselect the preset in the **fx Presets** display which appears.

2.4 Input Channel Specific Functions

2.4.1 Trim and Track

On Input channels with an external input, there is a trim section at the bottom of the channel strip's input area, consisting of a smaller pot marked **trim** and a **track** on/off button. The **trim** pot trims the level of the digital input signal, and the level adjustment is displayed to the right of the pot in dB. If **track** is switched on, the trim level automatically compensates for any adjustments made to the analogue input level: If the analogue input level is increased, the trim level will decrease in order to keep the signal level coming through the channel at the same level. This function is particularly useful when the analogue level is being controlled from another console, such as when this console is running monitor mixes and another console is running Front of House. Control of the **trim** pot and **track** on/off button can be assigned to the encoder and button below the channel using the **Quick Select Gain button** and the scrollers to the left of the encoders.

2.4.2 Input Routing

Inputs are routed using the channel **Setup** display, opened by touching in the input area of the channel strip. It is also possible to open the display from the **Channel Lists** display, opened from the Master Screen's **Layout** menu: Activate the **Edit** button at the base of the display, expand the required channel type by touching its entry in the list, then touch the output column within the required channel row. A **Setup** display will open within the Master Screen:

The buttons at the top of the channel **Setup** display to define the format of the channel: **mono** or **stereo**.

> ***Note that Multi-channel formats are configured in a different way from mono and stereo formats, as described in Section ?***

As the channel format affects a number of functions within the **Setup** display, it is advisable to select the format before any further configuration takes place. The current format of the channel is indicated in the channel strip by the number of meters displayed: One meter for mono channels and two for stereo.

For mono channels, each input channel has two inputs: a **main** input and an **alt**(ernative) input. These are selected using the **main** button in the channel strip. The button is grey when the **main** input is selected and red when the **alt** input is selected. The input can also be selected using the **main** and **alt** buttons towards the top of the **Setup** display. These buttons light to indicate which one is currently selected. For stereo channels, the alternative input is becomes the right side of the stereo input, and therefore no **main** and **alt** input selection buttons are shown.

The inputs available on an Input channel include feeds from the external IO racks, the local inputs on the back of the console and a variety of internal signals. Pressing either the **main input** or **alt input** routing button in the **Setup** display opens the **Input Route** display. The signal feeding each input can then be selected as described in the Getting Started section of this manual.

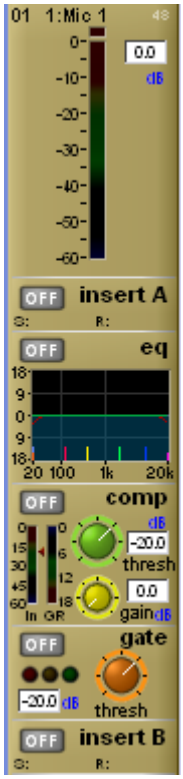
2.4.3 Input Configuration .....

If a channel is stereo, **balance** and **width** controls appear below the **mono** and **stereo** buttons: The left-hand blue pot controls the balance and can be reset to centre by pressing the **centre** button below it. The right-hand blue pot effects the width of the stereo signal, with a range from mono to wide. The width can be reset to stereo be pressing the **stereo** button beneath the **width** pot. The value of the balance and width is displayed to the right of each pot as a percentage divergence.

Stereo channels also have an **m-s** button, located above the input routing button, which switches in a decode function for replaying M-S signals as a normal stereo pair. There are three further buttons in this panel: **L<>R** swaps the channel's left and right outputs, **L>L+R** sends the left signal to both left and right busses, and **R>L+R** sends the right signal to both left and right busses.

2.4.4 Channel Metering .....

Channel meters can be displayed in the top section of the Input channel strip, in place of the input and filters areas. To do this, press the **Quick Select Gain** button and use the Screen Scrollers. If these encoders are initially assigned to the trim function, you will need to press the **Scroll** up button twice to display the meters.



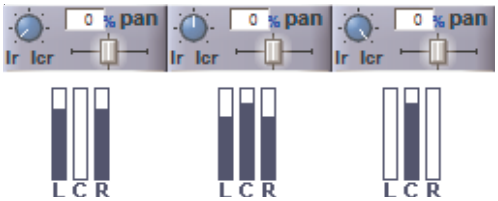
2.4.5 Output Routing .....

Signals can be fed from Input channels to four different places: aux busses, group busses, insert sends and direct outputs. Insert routing and basic direct output routing are described in the Getting Started chapter of this manual.

The top half of the output section of the Input channel strip contains the aux buss controls, described in the Getting Started chapter. Below the auxes, there is a pan control, affecting the relative levels of the channel's left and right outputs to any stereo routing destinations. The controls are formatted to match the format of the buss with the most components:

- Where there are only stereo or LCR busses, a simple pan slider is shown (see below left). Move the slider to adjust the pan. A text box indicates the panning position as a percentage from the centre towards the right.
- Where there are LCRS busses, a two-dimensional panning scope is shown (see below centre). Move the central grey square to adjust the position. Text boxes indicate the left-right and front-back position.
- Where there are 5.1 busses, a two-dimensional panning scope is shown, along with a pink **LFE** level control (see below right). Move the central grey square to adjust the position. Text boxes indicate the left-right and front-back position, as well as the LFE gain.

There is also an **LR/LCR Blend** control. This control allows adjustment of the amount of signal that is sent to the centre leg (where one exists) of a surround buss. In the extreme left **LR** position, no signal will go to the centre leg:



The pan of the Assigned channel can be controlled using the joystick. The pan control can also be assigned to one of the encoder rows. LR/LCR Blend is adjusted using the 2nd function button.

2.4.6 Aux Busses and Assignable Controls .....

Within an Input channel strip, each aux send has a level trim and on/off switch to the right. The switch is grey to indicate that the send is off, and red to indicate that it is on. The trim level is displayed in dB on the right of the channel strip, underneath the aux number.

There are three places within the channel from which the aux sends can be fed, as indicated by the source display immediately to the right of the level trim:

PRE	Pre-fader
POST	Post-fader
Pre-M	Pre-mute (and pre-fader)

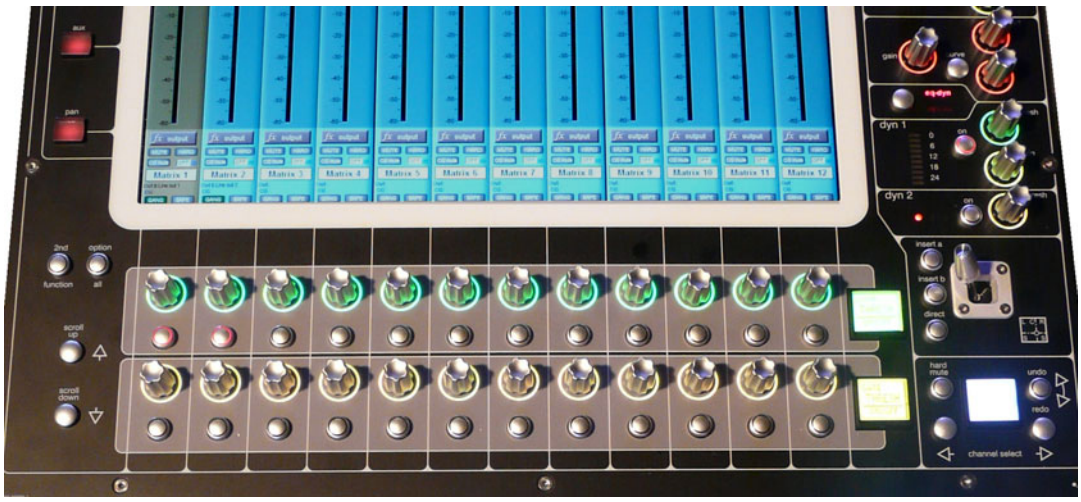
The source position can be changed by pressing the worksurface **2nd function** button and using the switches below the aux send encoders. The source for each aux can also be adjusted globally via the aux channel's **Setup** display.

On stereo aux sends, there is a pan control to the right of the on/off switch. This can be adjusted by pressing the worksurface **2nd function** button and using the rows of encoders below the worksurface screen. The pan controls for each aux can be globally linked to the channel fader via the aux channel's **Setup** display.

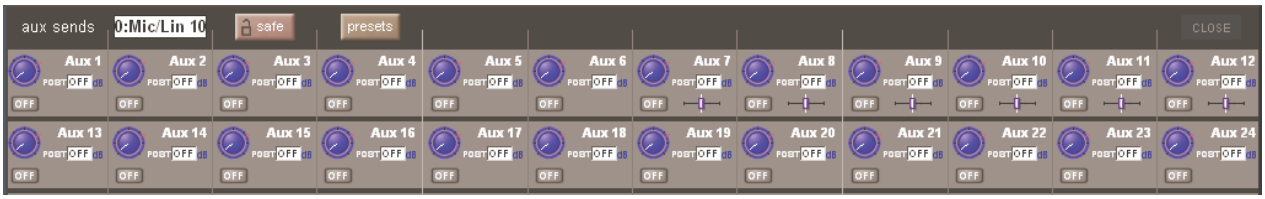
The two rows of encoders and buttons immediately below the Channel Strip can be used to control either the aux sends, or a separate function. This function is referred to as the 'locked' function, as it does not change when the auxes are moved. The LCD button at the right-hand end of each row flips the assignment of that row between the aux sends and the locked function. Touching any on-screen aux send assigns the highest available encoder row to that send, and assigns any other available encoder rows to the aux sends below it. The scroll button outside the bottom left-hand corner of the screen (in the top left-hand corner of the image below) can also be used to change which auxes are assigned to the encoders.

> ***Note that only six auxes can be displayed in the Channel Strip panel at once. The panel will always display the auxes assigned to the encoder rows below it.***

By default, the encoders control the aux level and the button controls the aux on/off status. However, by pressing the **2nd function** button (located to the left of the Channel Strip panel), the button becomes the aux's source selector (toggling between **PRE**, **POST** or **Pre-M**), and the encoder becomes the pan control of a stereo channel. On mono auxes, the encoder has no second function.



It is also possible to show all of the aux sends for a channel in a single display and assign them to the 24 rotaries beneath the screen. This is done by touching the currently assigned aux row on the screen for the channel that you want to display. The layout of the display indicates which encoder each aux is assigned to; if there are more that 24 sends, the assignments becomes scrollable using the **Screen Scroll** function.

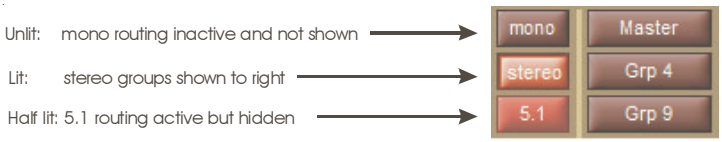


Once you have adjusted the auxes in this display, you need to close it manually before opening any other channel detail display.

> ***Note that further worksurface assignments of auxes is available via the Surface, Faders and Solo tabs of the Options menu.***

2.4.7 Group Routing

Group outputs are routed from within the **groups** section of the channel **Outputs** display. Touching the **mono** button to the left of the display produces a list of available mono groups in the right of the display, and touching the **stereo** or surround format buttons produces a list of the other types of group. These buttons 'light' to indicate that it is their group outputs list which is currently displayed, and 'half-light' to indicate that there is routing to busses of that format which isn't shown in the display. Touching any of the groups within each list routes the channel to that group. Each channel can be routed to as many mono and stereo groups as have been created.



Any mono groups being fed by a stereo channel will receive a L+R summed signal of the channel output.

The lowest selected group output is displayed in the channel strip, below the left side of the channel name, and the currently selected direct output is displayed below the right side of the channel name.

When a new session is created, the lowest numbered stereo group is always designated the **Master**. Therefore, all input channels are routed to it by default, and the master faders are assigned to it.

2.4.8 Direct Outputs

Basic routing is described in the Getting Started section. Once the direct output has been routed, it is switched on by pressing the grey **on** button next to the output level meter in the grey area below the **direct outs** routing button. The direct out is taken post-fader by default, but can be switched to pre-fader or pre mute by pressing the button to the right of the **on** button. The current selection is displayed to the right of the button.

2.5 Output Channels Specific Functions

2.5.1 Unfolding Channels .....

Group and Aux Channels which are stereo or multi-channel have an **Unfold** button above their meters, which is used to display the components of the signal in their own channel strip with a master channel displayed to their left.

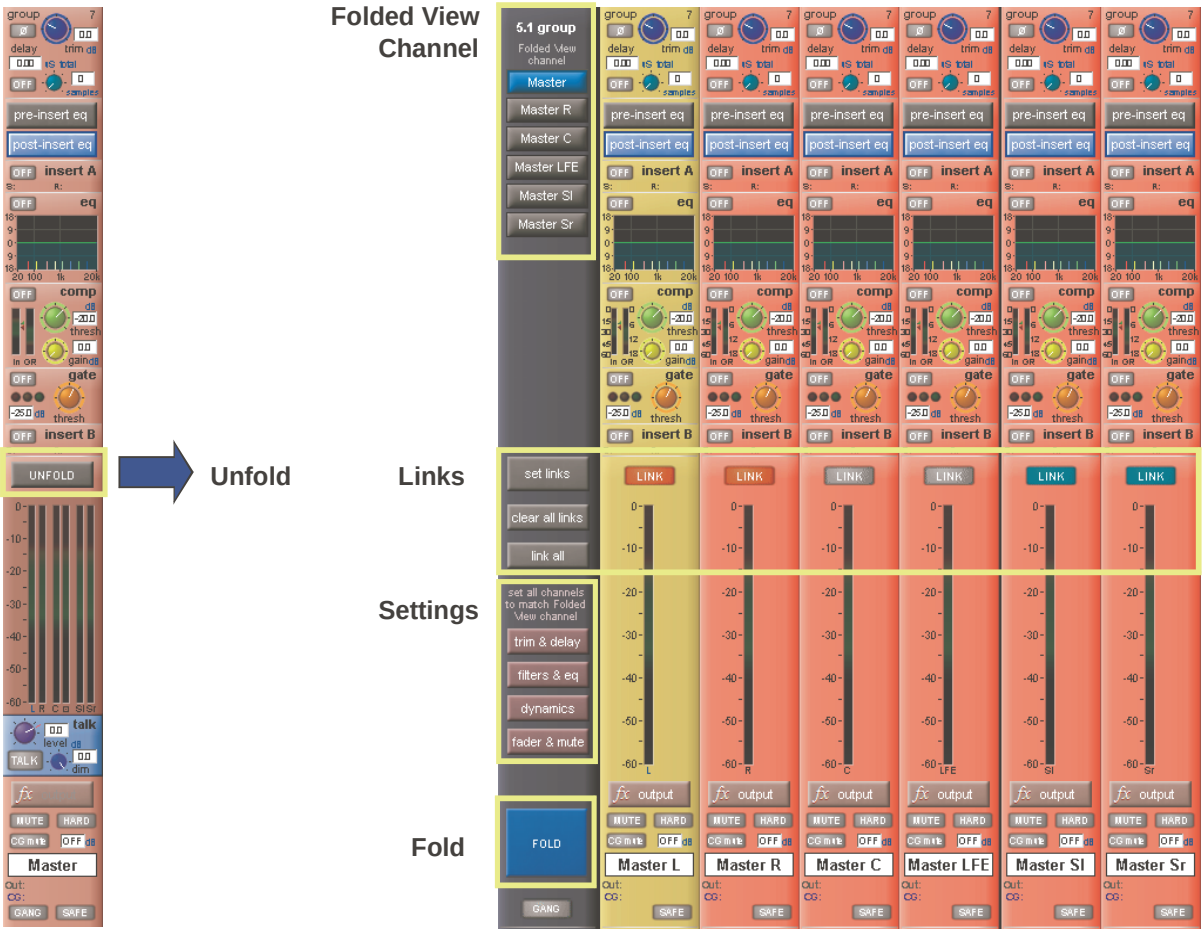
In the top section of the unfolded Master channel, buttons for each component channel allow you to define which channel's elements are displayed in the Folded View.

In the middle area of the unfolded Master channel, the links between component channels can be edited. Links function in the same way as Gangs, but are limited to the components of a multi-channel signals. To edit links, press the **Set Links** button so that it goes red, then press the **LINK** buttons above the channel meters in the channels to be linked or unlinked - each button will take on the same colour, indicating that they are linked. To remove a link, press the **LINK** button while **Set Links** is active. Note that if you start a set of links and then de-link and re-link another channel, a new link set will be started, as indicated by the introduction of a new link colour. When you have finished linking channels, deselect **Set Links**. You can also **clear all links** and **link all** using the buttons below **Set Links**.

> ***Note that if component channels have different settings when linked, changes in hidden, linked channels will be made relative to the change in the Folded View channel, but the display will only reflect the Folded View channel.***

Below the link buttons in the master, there are buttons for each element in the components' channels - **trim & delay, filters & eq, dynamics** and **faders & mutes**. Pressing one of these buttons will cause that element in all the channels to match those of the Folded channel.

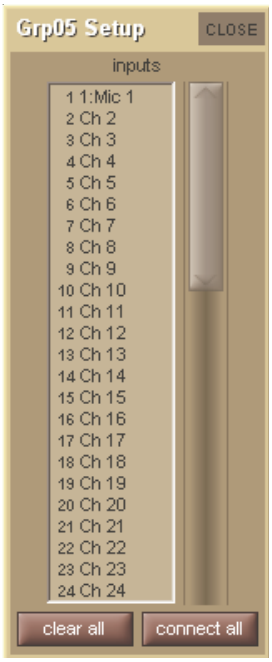
Once you have finished with the unfolded view, press the **FOLD** button to fold the channels back together.



2.5.2 Group Channels Specific Functions .....

The Group channel input signals are defined within the Input channels **Output** display. The top section of the Group channel **Setup** display lists all of the currently selected **inputs** to that group. The inputs list can be scrolled using the scroll bar to the right if necessary. Below the list there are two buttons: **clear all** removes all of the input routes to that group. Pressing this button produces a confirmation box in which the clear all can be confirmed or cancelled. **connect all** routes all Input channels to the group.

Note: With either the connect or clear all functions, you can exclude individual channels from the function by touching their faders when the button is pressed.



Group channel output routing functions very much like Input channel output routing, described in Section 2.4.7.

2.5.3 Aux Channels Specific Functions .....

As the Aux channel input signals are defined within the Input channels, there is no input selection available within the Aux channel **Setup** display. There are, however, a number of configuration options in the top half of the Setup display:

The **set all sends** buttons at the top of the **Setup** display affect the sends to that aux bus from all of the Input channels.

The three buttons on the left, **pre mute**, **pre fader** and **post fader**, set the point in the channel from which the aux send is taken. The current send point is displayed next to the aux send level in the Input channels.

Note that send points can also be individually selected within the Input channel using the 2nd function button.

Pressing the **link pans** button, located to the right of the **pre mute** button, links that aux send pan to the main channel pan in the Input channels. This button lights red to indicate that it is active. Further indication is provided by the aux pan slider in the Input channel strip being lit pink.

Pressing **aux to fader** assigns control of all input channel's auxiliary sends to the channel faders.

Pressing **aux to rotary** assigns control of all input channel's auxiliary sends to the top available encoder row beneath the Channel Strip panel.

The purple **copy levels from** buttons also affect the sends to that aux bus from all of the Input channels. The buttons list can be scrolled using the scroll bar on the right. These buttons are used for universally setting the aux send levels: **Off** sets the level to off and **0dB** to 0db. **fader** sets each Input channel's aux send level to match the level of its channel fader. The remaining **copy levels from** buttons copy a different set of Input channel aux send levels to that aux send.

> ***Note that when a copy levels from button has been pressed, send levels can still be individually readjusted within the Input channel.***

Touching the **mix presets** button (below the **copy mix levels from** list) opens the **Aux Mix Presets** display, where you can store and recall presets of an aux send's parameters for all input channels, using the standard SD5 presets procedure, detailed in Section3.

2.5.4 Matrix Channels Specific Functions .....

As the Matrix channel input signals are defined within the **Matrix** inputs display, there is no input selection available within the Matrix channel.

2.6 Channel Signal Processing

Each channel type contains similar signal processing functions, including EQ and dynamics. Input channels also have high-pass and low-pass filters. Pressing on each of these areas of the channel strip will open the relevant signal-processing display.

2.6.1 Channel Filters (input channels only) .....

The filters section of the channel-strip is located below the input section of each input channel. It consists of two frequency pots, each with its own on/off button and a display of the filter's cutoff frequency (the -3dB value) in Hertz. The on/off buttons are grey to indicate that the frequency band is off, and red to indicate that it is on. The low-pass filter is at the top and the high-pass filter is at the bottom, and both have a roll-off of 24dB per octave. The filters directly follow the input section in the signal chain.

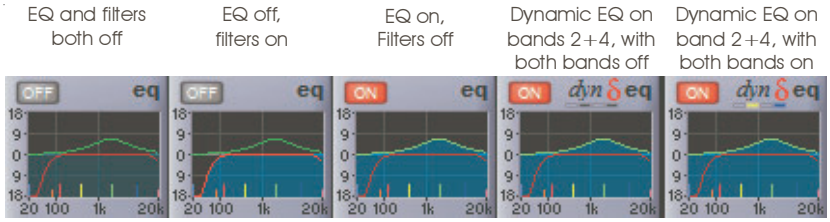
The filters area is replicated at the top of the EQ/filters display, accessed by touching the EQ area of the channel strip. The filter can be configured using the dedicated filter encoders and buttons at the top of the channel worksurface controls:

A graphic representation of the filters is included in the EQ graph located below **Insert A** in the channel strip, described below. The red line in the graph represents the current filter settings.

> ***Note that the filters section of the input channel strip may be hidden behind channel meters. In this case, moving the filter encoders will cause them to be displayed momentarily. To hide the meters and retain a permanent display of the filter controls, press the*** *assign* ***down button, located to the left of the encoders above the screen.***

2.6.2 Input Channel EQ .....

The SD5's input channel EQ has four bands, each of which can be made dynamic. The four EQ bands are colour coded: Blue for HF, green for HMF, yellow for LMF and red for LF. The in-channel display is located below **Insert A** and consists of a graphic representation of the current EQ and an on/off button. The button is grey to indicate that the EQ is off, and red to indicate that it is on. The green line in the graph represents the frequency response of the EQ, and the red line represents the response of the filters – each line goes bright to indicate that it is on. The extent and brightness of the clouded area in the bottom half of the graph also indicates which elements are on. The central frequency of each band is displayed by small lines in the band colours, along the bottom of the graph.



Touching the EQ area of the channel strip brings up the EQ/filters display. The EQ section of the display is below the filters section, and has another graphic representation of the current EQ at the top. Touching this EQ graph will open an expanded view of the graph. The EQ can be configured using the dedicated encoders and buttons on the worksurface which follow the same layout as the display:

In both the EQ/filters display and on the worksurface, each band has a **±**18dB **gain** controller on the left, a **freq**uency controller (ranging from 20Hz to 20kHz) top right and a **Q** control bottom right. Each pot has its value displayed to its right.

Each band can be switched between a **bell** curve (which is the default setting) and a **loshelf** (in the case of the lower two bands) or **hishelf** (in the case of the upper two bands), using the **bell** button.

Pressing the **precision** or **classic** buttons above the EQ controls will switch all four visible bands to that shape.

prec (precision, where the Q is narrower on the cut curve than the boost curve) and **class** (classic, where the cut and boost Q curves are identical in width)

The EQ is switched on using the **eq on** button between the HMF and LMF controls which rings red to indicate that it is on.

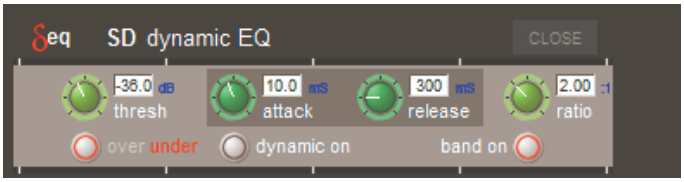
> ***Note that when a band is in dynamic mode, it can also be switched on and off individually in the dynamic display. See below.***

Towards the bottom of the EQ/filters display are three grey buttons marked **safe**, **flat** and **preset**. Touching **safe** adds the EQ to that channel's list of channel safes. Touching **flat** resets the EQ gain controls to 0dB. Touching **preset** brings up the **Presets** display which can be used to save and recall presets.

Below these buttons is a smaller round button which is also found at the bottom of the channel worksurface controls, for switching the signal-processing order. The default setting is EQ followed by dynamics, as indicated by the **eq-dyn** label being to the left of the button. Pressing this button reverses the order, as indicated by the labelling switching to an **dyn-eq** display to the right of the button.

Dynamic EQ

In a dynamic EQ module, the EQ adjustment is applied dynamically, based on the level of the incoming frequency relative to a predetermined threshold. Dynamic EQ is accessed by touching the red "Delta" symbol on any EQ band. Activate the dynamic function by pressing the **dynamic on** button (a red ring will appear in the button). When dynamic EQ is active, you can also mute and unmute the entire EQ band by pressing the **band on** button (a red ring indicates that the band is unmuted).



When any dynamic EQ bands are on, a dynamic EQ icon appears above the EQ graph in the channel strip (as shown on the previous page). The four boxes beneath the icon indicate the status of each band – each box is empty (light grey) when the band dynamics are off, dark grey when the dynamics are on but the band is off, and coloured when the dynamics and band are on.

DiGiCo dynamic EQ can operate in two modes: 'over' or 'under':

Over Mode

To place the dynamic module into Over mode, ensure that the Over indication below the threshold control is not illuminated.

When the signal entering the module passes the threshold, the EQ adjustment (as determined by the frequency and Q controls) starts to be applied, up to a maximum adjustment, determined by the EQ band gain control. The manner in which the EQ adjustment is applied once the threshold has been reached is determined by the attack, release and ratio controls.

Gain :	Sets the maximum EQ adjustment that could be applied
Frequency / Q / Curve :	Adjusts the EQ characteristics
Threshold :	Sets the threshold at which the EQ starts to be applied
Attack :	controls how quickly the dynamic module responds to level passing the threshold
Release :	adjusts how quickly the module responds to a fall in level
Ratio :	controls how quickly the maximum adjustment is reached once the threshold level is passed.

Over Mode is generally used with a reduction in gain at a specific frequency, such that when the threshold is reached, a gradual reduction of level at that frequency is applied. This could be used to control a change in tonal characteristics as a singer pushes their voice to sing louder.

Under Mode

To place the dynamic module into Under mode, ensure that the Over indication below the threshold control is illuminated.

In under mode, the maximum EQ adjustment (as determined by the frequency, Q and band gain controls) is applied when the signal entering the module is below the threshold. As the signal level approaches the threshold, the EQ adjustment is reduced to the point where there is no EQ being applied at the threshold. The manner in which the EQ adjustment is reduced as the signal level approaches the threshold is determined by the attack, release and ratio controls.

2.6.3 Output Channel EQ .....

The EQ located in each output Channel is similar in operation to the input channel EQ, with the following exceptions:

Output channel EQs have eight bands – four pre-insert and four post-insert. Buttons in the channel strip (**pre-insert eq** and **post-insert eq**) and in the EQ display (**pre-insert bands** and **post-insert bands**) select which set of bands is assigned to the worksurface and display controls. All eight bands are shown in the EQ graph, with the pre-insert bands shown in lighter shades than the post-insert bands.

The **precision** and **classic** buttons above the EQ bands only affect the four bands currently displayed, and not the full 8 bands available. The pre-insert bands do not have dynamic EQ or bell-shelf switching – the bell button is only used for switching between precision and classic Q shapes.

2.6.4 Channel Dynamics .....

The SD5's channel dynamics includes two dynamics modules. Module 1 is a fully configurable compressor which can be split into three frequency bands or configured as a de-esser; Module 2 can function as a gate, a ducker, or a compressor, all with high- and low-pass filtering.

The in-channel display is located below the **eq** display, with Module 2's controls shown below Module 1's. Each module can be switched on by pressing the on/off switch in the upper left corner of its channel area. These buttons are grey when off and red when on.

The display includes an input (**In**) meter and a gain reduction (**GR**) meter. The input meter has arrows to its right which display the current threshold values for each module. Each arrow is distinguished by its colour, which matches its associated threshold pot.

When Module 1 is in Compressor or Multiband mode, **thresh**old and **gain** pots, each with a value display in dB, are also shown in the channel strip (when in Multiband mode, the threshold pot affects all bands and the mid band's value is displayed). The De-esser only displays a threshold pot and its value. There is a threshold pot (with value display) shown for Module 2, with three status indication lights shown when in Gate or Ducker mode.

1: Compressor 2: Gate | 1: Multiband 2: Ducker | 1: De-esser 2: Compressor

Pressing anywhere in either module area brings up the expanded **dynamics** display.

To switch each module between its three modes, touch the button on the left of its expanded display, marked **comp**/**multi**/**desser** for Module 1, and **gate**/**duck**/**comp** for Module 2. Both modules can be switched on using the **on** button below their **thresh**old buttons. The joint input meter is shown in the expanded display, with the same threshold indication. In multiband channels, each component has its own meter.

The pots within the expanded display are automatically assigned to the worksurface encoders below the screen when the dynamics panel is expanded, as indicated by the matching coloured rings around the pots and encoders. When in Multiband mode, each band is assigned to a row of encoders. When Module 2 is also on, it appears in the bottom row of encoders.

> ***Note that if the gate occupies the bottom row of encoders while the multiband compressor is on, the HF compressor band is not displayed, and the MF and LF bands both shift up a row.***

At the top of the expanded display are buttons marked **safe** and **presets**. Touching **safe** adds the dynamics to that channel's list of channel safes. Touching **preset** brings up the **Presets** display which can be used to save and recall presets.

If a **link** button is shown below the input meter, it allows two channels to be linked together. In other words, the other channel's signal is added to this compressor's control circuit input, and this channel's signal is added to the other channel's control input.

On stereo input channels, the link is always active and the button isn't shown. On stereo output channels, the **link** button is available and the link is always between left and right components; it is active by default.

On mono or multiband channels, pressing this button brings up a dynamics link display listing **Channels**, **Groups** and **Auxes signal groups** in the left-hand side. When one of these **signal groups** is selected, their available **signals** are listed in the right-hand side of the display. Select a signal to link to and close the display.

The **link** button is ringed red and the linked channel's number and name is displayed in the box above it to indicate that there is a link present. To cancel the link, press the button again and deselect the link signal.

> ***Note that when a link channel has no name, the display repeats the channel number.***

Beyond the link function, the different modes of each module have completely separate settings: No settings are copied between them. If you switch from one mode to the other, the settings will be reset to there defaults. The controls specific to each mode of each module are described below:

Module 1: Compressor

In Module 1's compressor, **thresh**old, **attack**, **release**, **ratio** and **gain** controls are provided, each of which function in the normal way. The compressor has an auto gain function which is switched on by pressing the **auto gain** button below the **ratio** pot. This function automatically adjusts the gain makeup when changes are made to the **thresh**old, thus keeping the compressor output steady. The threshold knee can be switched between **hard**, **mid** and **soft** using the **knee** button in the right side of the module. The gain reduction (**GR**) meter is duplicated in this display.

Module 1: Multiband Compressor

In Module 1's multiband compressor, each band includes all of the parameters found in the single band compressor. The link function remains available for the whole compressor, and is not assigned to any band. The bands can be switched on individually using the **on** buttons in the left-hand side of each band, or together using the **all on** button in the display's right.

The crossover frequency between bands is controlled using the purple and red pots to the left of the **hi** and **lo** bands. Each crossover has a range of 20Hz to 20kHz, and the crossover frequencies are displayed below each pot. Each band can be auditioned by pressing the **listen** button below each **gain** pot.

> ***Important Note: In software versions earlier than V463, when any band is switched off, that band will not pass audio. In later software versions, bands which are off are bypassed rather than muted.***

Module 1: De-esser

The de-esser's controls are similar to those of the compressor, with the following exceptions: In the right side of the module, there is a band-pass filter control for the de-esser sidechain, with pots provided for the centre frequency and filter width. The -3dB points for the hi-pass (**hp**) and lo-pass (**lp**) frequencies are shown. The filtered sidechain can be auditioned by pressing the **listen** button. Note that there is no make-up gain included.

Module 2: Gate

Gates can be keyed by a different signal by pressing the **key** button below the **attack** pot. This brings up a **Gate Key Route** display from which a key input can be selected. Consecutive channel gates can be keyed by consecutive input signals using the **ripple channels** function. The key button is ringed red and displays the key input in the text box to its right to indicate that another signal is keying the gate. The key input signal can be auditioned by pressing the **key listen** button underneath the **range** pot.

There is a band-pass filter available: the **width** control adjusts the width of the band being passed, and the **freq** control moves that band through the frequency range. The hi- and lo-pass sidechain filter frequencies are displayed.

To the right of the **link** button, there are red, amber and green status indication 'traffic lights'.

Module 2: Ducker

The ducker has exactly the same controls as the gate, though the sidechain performs the opposite function of ducking the signal rather than gating it.

Module 2: Compressor

Module 2's compressor is identical to the single band mode of Module 1, with the addition of the band-pass filter described above, and a sidechain input function (**S/C**) which functions exactly like the **key** function of the gate.

2.7 LCD Functions

2.7.1 Introduction to LCD Functions .....

The LCD button is located above the channel fader, and is included in every channel in both the centre section and side sections of the console. The channel number is displayed in the top half of the button. The current function mode of the button is displayed in the bottom half of the button and is also indicated by its colour.

LCD buttons are able to fulfil a number of different functions, and are even involved in selecting their own function. These functions are accessed by pressing the **lcd function** button, located above the **bank** buttons on each section of the desk. When this button is pressed, LCD buttons for the channels associated with it turn yellow, indicating that they have become function mode selectors:

Selecting one of these options assigns that function mode to the LCD buttons for all the channels within the **banks** associated with that **lcd function** button.

There are twelve different function mode options.

2.7.2 Solo.....

When an **lcd function** button is pressed, the left-hand LCD button is labelled **SOLO**. When **SOLO** mode is selected, the LCD buttons become solo buttons. The bottom half of the LCD button indicates which solo busses are available to the channel, as defined in the channel **Setup** display and the **SOLO CHOICE** function mode (described below). The button also displays whether each buss is AFL or PFL, as defined in the top-left corner of the master solo display.

In **SOLO** mode, the LCD buttons are coloured according to their channel type when not soloed, and coloured green when soloed.

Note that this is the default mode of the LCD buttons, current when no other function modes have been selected.

2.7.3 Solo Choice .....

When an **lcd function** button is pressed, the second LCD button from the left is labelled **SOLO CHOICE**. When this mode is selected, the LCD buttons are used to select the solo bus assignment for that channel, toggling between **1**, **2** and **1+2**.

In **SOLO CHOICE** mode, the LCD buttons are coloured cyan.

2.7.4 GANG .....

When an **lcd function** button is pressed, the third LCD button from the left is labelled **GANG**. When this mode is selected, the LCD buttons are used for linking together all channel controls. All LCD buttons which are then pressed will have their controls linked. In the case of currently ganged channels, the LCD button can be used to remove them from their ganging group. The colour of the **GANG** symbols in the bottom left-hand corner of the on-screen channel display indicate what ganging groups exist: All faders which are ganged together will share one colour. Each time the **GANG lcd function** is selected, a new ganging group is started, as indicated by the **GANG** symbols turning a different colour.

To gang channels across different surfaces of the console, activate the **GANG** LCD function on each surface before starting to build the gang. A single cross-surface gang can then be created using the LCD buttons in the usual way.

To stop adding channels to the current gang and start a new gang, simply reselect the **GANG** LCD function.

When channels are ganged together, operating any of their channel controls will cause all other channels within the ganging group to replicate that movement. Pan and phase controls are not included in gangs.

Note that it is the level change associated with the fader movement which is replicated, not the physical distance the fader is moved.

Note also that when a ganged channel is muted, those channels within the ganging group which were already muted will stay muted. When the channel is then unmuted, all channels unmute, irrespective of whether they had been initially muted.

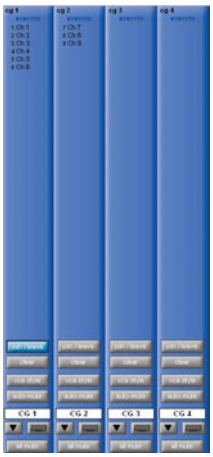
Note also that when any member of a gang is Assigned, the Undo function will always take the faders back to their position when the channel Assignment was made.

Channels can be temporarily isolated from Gangs by pressing the Option button.

Note that gangs cannot be edited once they have been created.

2.7.5 JOIN CG .....

When an **lcd function** button is pressed, the fourth LCD button from the left is labelled **JOIN CG**. When this mode is selected, the LCD buttons can be used for assigning channels to Control Groups. Control Groups enable a number of channel output levels and mute functions to be controlled from one master fader. Control Groups can include any combination of channels from all four channel types.



Note that Control Group channels function completely differently from Group channels: Group channels mix together the audio from any channels routed to them, whereas Control Group channels simply move the channel faders of any channels assigned to them, irrespective of any audio routing.

A session can have up to 24 Control Groups. Control Groups can be named using the standard naming tools. The **safe** button, located at the bottom of the on-screen channel strip, can be used to protect the assignments and settings of the Control Group from being changed if a new Snapshot is fired.

Control Groups Channel Assignments

To add or remove channels from a Control Group, enter **JOIN CG** function mode and press the LCD button on the Control Group channel to be edited. Alternatively, touch the **join/leave** button at the top of the button set in the Control Group channel's panel. All LCD buttons will now turn blue to indicate that they are in Control Group Join mode, and will display the number of the Control Group being edited in the bottom half of the button.

Note that touching join/leave on one channel puts all channels into JOINCG mode.

The LCD buttons on any channel currently included in the group will display light blue. Press the LCD button to remove that channel from the group.

All other channel LCD buttons will display dark blue, indicating that they are not currently included in the Control Group being edited. Pressing any of these LCD buttons will add them to the group.

All of the Control Groups to which a channel belongs are displayed immediately above the **GANG** and **SAFE** buttons in the Channel strip panel.

Note that only the first two to three Control Group assignments within a channel can be displayed in the channel strip.

All of the channels included in a Control Group are listed in the top half of its channel strip display.

To clear all of the channels currently assigned to a Control Group, touch the Control Group's **clear** button, located below the **join/leave** button, and press **Yes** in the warning display that appears.

Control Group Fader Modes

There are three modes in which the Control Group fader can interact with the faders of the channels assigned to it, and the button below the **clear** button in the channel strip display toggles between them:

In **moving fader** mode, all assigned faders will move to replicate any Control Group fader movements.

Note that it is the level change associated with the fader movement which is replicated, not the physical distance the fader is moved.

In **vca style** mode, moving the Control Group fader affects the output level of all assigned channels without moving their faders.

In **mute only** mode, the Control Group only controls the mute buttons of assigned channels, not the output level.

Note that in all three modes, moving the fader of a channel assigned to a group does not impact the output levels of other channels within the group.

Control Group Mute Functions

The mute buttons within a Control Group interact in the same way, regardless of the current fader mode:

The mute button above the LCD display on a Control Group fader can be used to mute all of its assigned channels. Its function is duplicated by the **all mute** button below the channel's scribble strip. When a channel is muted by its Control Group mute button, the channel's mute button lights in the normal way. The channel's **CG mute** button goes blue to indicate that the Control Group mute button (rather than the channel mute button) is responsible for the mute. When deactivated, the Control Group mute button returns all assigned channels to their mute state before the Control Group mute button was activated.

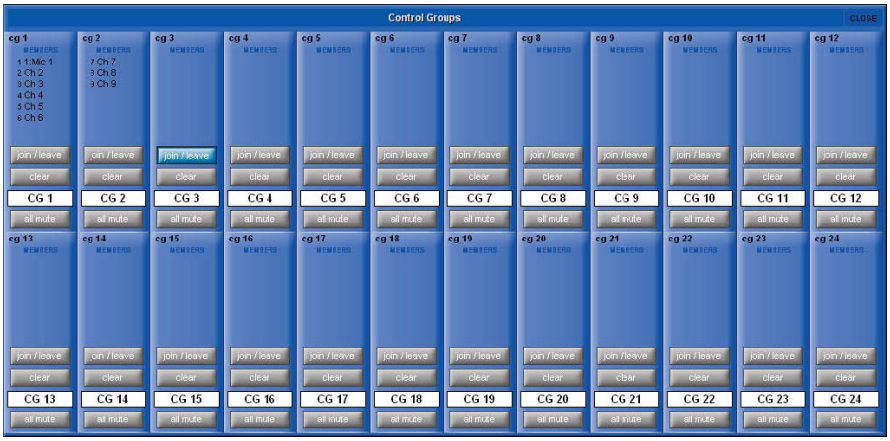
CG Mutes are treated as "in series" where a channel is a member of more than one group. All CG mutes must be off for a channel to be unmuted; any CG muted always mutes all of its members.

If a channel is CG muted by single or multiple CGs, the worksurface channel mute button will override all CG mutes for that channel. The channel will not however be removed from CG membership so if the relevant CG is muted again, the channel will also be muted.

The auto-mute function, activated by touching the **auto-mute** button located above the Control Group name in the Channel Strip panel, automatically mutes any channel which is removed from that Control Group and unmutes any channel that joins the Control Group.

The Master Control Groups Display

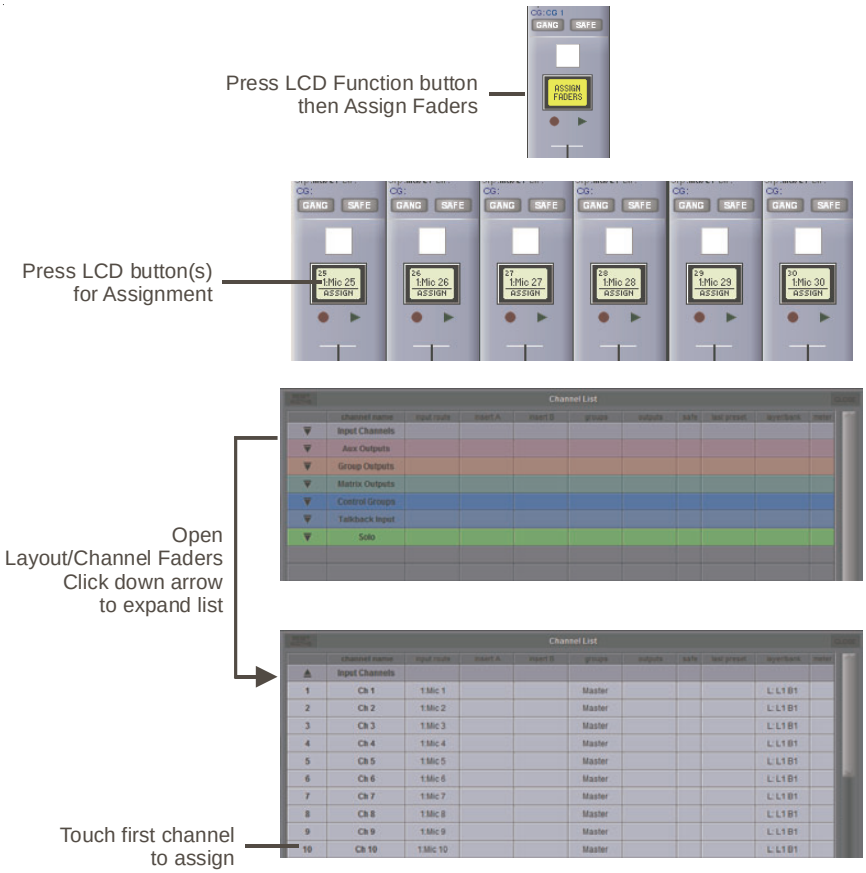
In addition to the Control Group channel strips, an overview of all the Control Groups within a session can be access via the **Control Groups** menu button in the master panel.



This display consists of basic versions of each Control Group channel strip, including the channel assignments lists and a number of basic settings which can also be adjusted in the display: **join/leave**, **clear** and **all mute**. The Control Group naming controls are also available within the display's channel strips.

2.7.6 Assign Faders .....

To assign channels to the worksurface, enter **ASSIGNFADERS** mode. The LCD buttons will turn dark green and their lower halves will read **ASSIGN**. Press the LCD buttons for each of the channel strips to which you wish to assign new channels.



To select the channels you wish to assign to those channel strips, open up the **Channel List** display, accessed by going to the master screen and touching **Layout** > **Channel List**. There you will find a list of all input, output and control channels that are present in the session structure, grouped by channel type. Open up the channel list for the channel type of the first channel to be assigned by touching the appropriate down arrow in the left-hand column. The channel list can be scrolled using the scroll bar on the right of the display:

To assign one of the listed channels to the channel strip, simply touch the channel name in the list. The remaining channels can now be assigned in the same way, The channels selected in the **Channel List** display are assigned to the selected channel strips in ascending order, starting with the lowest channel in the bank.

Note that the assign function is restricted to the currently selected bank.

Note also that when new channels are added to a session, or when a session is created, all of the existing channels can be assigned to the worksurface using the rebuild banks function within the Session Structure display.

2.7.7 Unassign Faders

To remove channel assignments from a channel strip, enter **UNASSIGNFADERS** mode. The LCD buttons will turn dark green and their lower halves will read **UNASSIGN**. Press the LCD button for any channel strip you wish to clear, and the strip will go blank.

2.7.8 Swap Faders

To swap the positions of two channels, enter **SWAP FADERS** mode. The LCD buttons will turn dark green and their lower halves will read **SWAP**. Press the LCD button for the two channels you wish to swap, and they will swap places.

2.7.9 Move Faders

To move channels within a channel strip, enter **MOVEFADERS** mode. The LCD buttons will turn dark green and their lower halves will read **MOVE>>**. Pressing any LCD button will result in that channel moving one space to the right. If the bank is full all channels to the right of the moved channel will move right, and any channel which had been occupying channel-strip 12 will be lost from the layout. If there is a blank channel strip anywhere to the right of the moved channel, any channels further right than the blank will not move, and the moved channels will simply fill the blank space.

For example, if the bank is occupied by input channels 1 to 12, pressing **MOVE>>** on channel 6 will result in channels 6 to 11 moving one space to the right, leaving a space in channel strip 6, and channel 12 being removed from the layout. Pressing **MOVE>>** on channel 4 will then result in channels 4 and 5 moving one space to the right, filling the space that was in channel strip 6 and leaving a space in channel strip 4.

When blank channels are moved they simply swap positions with the channel to their right. Note that any blank channels immediately to the right of the one being moved will move as well, and the blanks will move by as many channel strips as there are blank spaces being moved.

For example, if channel strips 1 to 3 are blank and Input channels 1 to 9 are occupying strips 4 to 12, pressing **MOVE>>** on channel strip 2 will result in blanks 2 and 3 swapping places with Input channels 1 and 2.

2.7.10 Copy Bank From

To copy a different bank of channels to the current bank location, press **COPYBNKFROM**. The message '**PRESS | A BANK | BUTTON | FOR | COPYIN | FROM**' will be shown across the LCD displays. Simply press the **bank** button for the bank which you want to copy to the current location.

2.7.11 Copy Bank To

To copy the current bank to different bank location, press **COPYBNKTO**. The message '**PRESS | A BANK | BUTTON | FOR | COPYIN | TO**' will be shown across the LCD displays. Simply press the **bank** button for the bank to which you want to copy.

2.7.12 Clear Bank

To clear all channels from a bank, press **CLEARBANK**. 'The message '**CONFIR| CLEAR| BANK:| YES| NO**' will be shown across the LCD displays. Press **NO** to cancel the action or **YES** to continue.

Note - Banks can be moved between layers, and also between sections of the console.

Note also that the Fader Banks display on the master screen can also be used for altering the bank layout.

Note also that there is no undo function for these actions. Proceed with care!

2.7.13 Create Multi

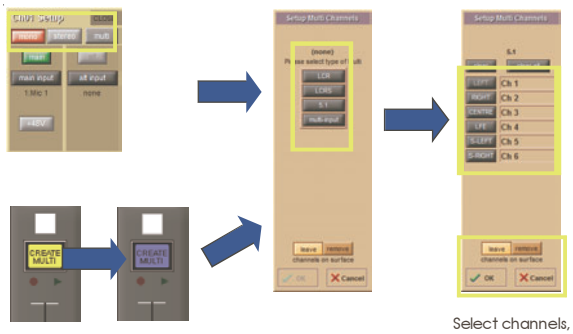
The final LCD function, **CREATE MULTI**, is used to place new Multi channels onto the surface. When active, the LCD function buttons of any assigned faders will remain in their **SOLO** mode, whereas all unassigned faders will be available for creating new Multis. Once created, Multis can be configured in the normal way, as described below.

2.8 Multi Channels

If you are working in Surround, or using another multi-channel format, you can create LCR, LCRS and 5.1 busses in the Session Structure window described in Section 1.5.1.

Multi-channel inputs are controlled by routing each component through a mono channel and then linking those channels via a 'Multi' channel. To start with, use the normal input and output routing procedures to route each component through a channel. There are then two options for creating a Multi channel: If you want to create the Multi in place of the channel strip for its first component, open the **Setup** display for the first component and select **Multi** at the top. Alternatively, if you want to create a Multi in a previously unassigned location, use the **CREATE MULTI** LCD function described above.

Whichever procedure you use to create the Multi and assign it to a fader, you will now be presented with a **Setup Multi Channels** display. Select the format – **LCR, LCRS, 5.1** or **multi-input** (which allows you up to 11 components) – and then press the LCD buttons for the remaining component channels, working down the displayed list in order. Channel names will appear against each component. Each channel can then be left on the worksurface or removed using the buttons towards the base of the display. Finally, touch **OK** to close the display to link the channels together.



Multis can be unfolded in order to access controls for each component. This is done by pressing the **Unfold** button in the channel strip. When unfolded, the normal channel assignments are hidden, each component is given its own channel strip, and a Multi master channel is displayed to their left (shown over the page).

> ***Note that if leave (channels on the surface) was selected when the Multi was created, the component channel strips are available whether or not the Multi is folded.***

In the top section of the unfolded Master channel, buttons for each component channel allow you to define which channel's elements are displayed in the Folded View, if any **Folded Controls** are activated (see below).

In the middle area of the unfolded Master channel, the links between component channels can be edited. Links function in the same way as Gangs, but are limited to the components of a multi-channel signal. To create or edit links, press the **Set Links** button so that it goes red, then press the **LINK** buttons below the channel names in the channels to be linked - each button will take on the same colour, indicating that they are linked. To remove a link, press the **LINK** button while **Set Links** is active. Note that if you start a set of links and then de-link and re-link another channel, a new link set will be started, as indicated by the introduction of a new link colour. When you have finished linking channels, deselect **Set Links**. You can also **clear all links** and **link all** using the buttons below **Set Links**.

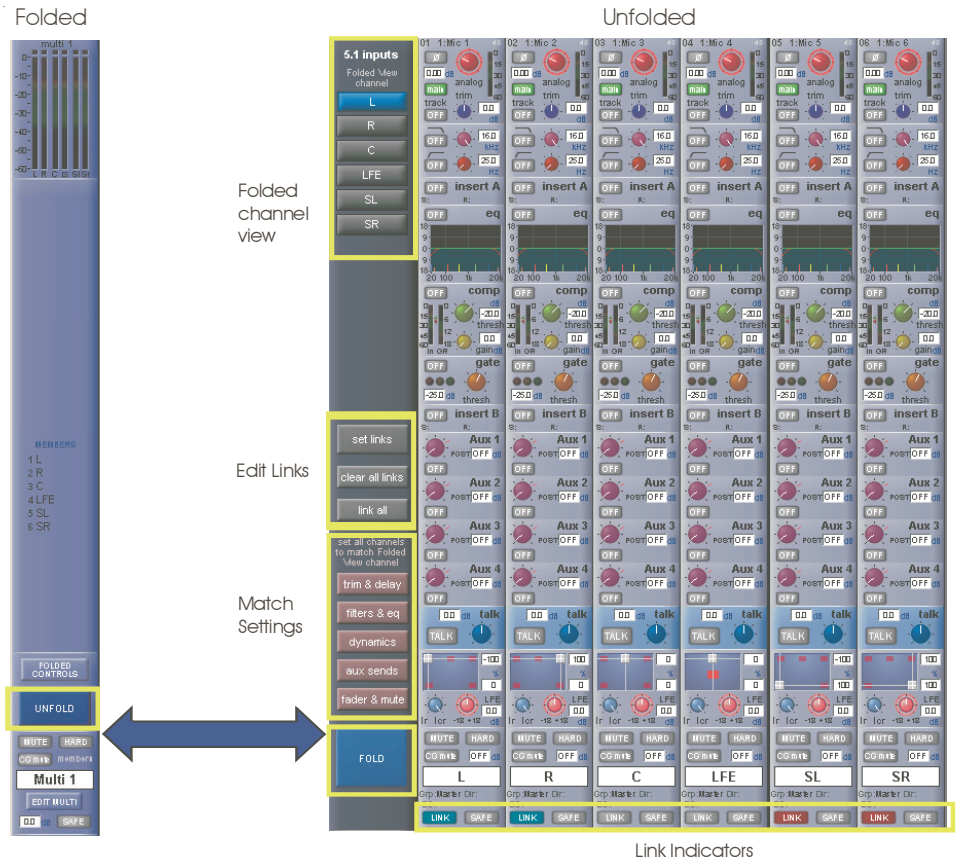
Below the link buttons in the unfolded Multi Master, there are buttons for each element in the components' channels - **trim & delay, filters & eq, dynamics** and **faders & mutes**. Pressing one of these buttons will cause that element in all the channels to match those of the Folded channel.

Once you have finished with the unfolded view, press the **FOLD** button to fold the channels back together.

In folded view, the channels included in the Multi are shown in the middle of the Multi channel strip. Touching the **Folded Control** button brings up four buttons which allow you to define which channel elements are displayed in the folded channel strip: **Input, EQ, Dynamics** and **Aux Sends**. These settings reflect the channel which has been set as the Folded View channel; the Folded View Channel is shown with a blue (as opposed to black) channel number in the list displayed in the folded channel, if any Folded Controls are activated. Adjusting any element in the Folded channel strip will affect all linked channels.

> ***Note, however, that if channels have different settings when linked, changes in hidden, linked channels will be made relative to the change in the Folded View channel, but the display will only reflect the Folded View channel.***

> ***Note also that activating the Aux Sends Folded Controls will result in the channel components list becoming hidden.***



The fader and mute on the Multi channel strip will always affect all of the Multi members irrespective of the link settings and thus serves as a “Master” fader and mute for that multi’s members.

The on screen indicators for **Channel Mute**, **Hard Mute** and **CG Mute** at the bottom of the Multi strip give an indication as to whether any of the Multi members are Channel Muted, Hard Muted or CG Muted. If any member has any one of these types of mute active, the Folded Multi’s indicator will show this.

In the Folded Multi view the worksurface Mute switch can have one of three different states:

1) Not lit (OFF) - the Multi Master Mute is not active - unmuted. Note that if any channels are muted individually, the **mute** indicator below the **unfold** button will be red.

2) Lit and red (ON) - the Multi Master Mute is active - muted.

3) Flashing from OFF to ON - the Multi Master Mute is active but at least one of the members has been unmuted (opened) thus overriding the Multi Master Mute on one or more of the Multi’s Members.

Edit Multi

At the bottom of the Multi strip there is also an **Edit Multi** button which allows the members of the Multi to be changed or the Multi to be cleared or deleted. Pressing this button will open the **Setup Multi Channels** panel.

To edit the members of the Multi, press one of the grey buttons on the left to select a member and then press one of the worksurface Channel Select buttons to assign a channel. To clear the Multi, press the **Clear All** button at the top of the panel and then either select a new type of Multi or delete the Multi completely by pressing the **Delete Multi** button at the bottom of the panel.

SD5 Operation Manual

Chapter 3:

The Master Screen

This chapter describes all of the functions accessed from the Master Screen. The chapter focuses on the functions of the menu buttons across the top of the Master Screen, working through the buttons from left to right. Master Section worksurface elements are described within the context of the Master Screen display.

To open the Master screen press the worksurface **Master** button in the centre section.

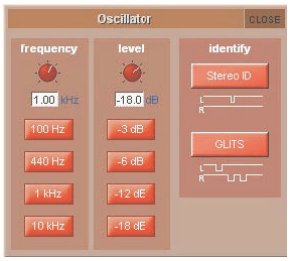
3.1 System Menu

3.1.1 Diagnostics .....

The **Diagnostics** display is explained in the Troubleshooting chapter.

3.1.2 Oscillator .....

The SD5's oscillator is configured in the **Oscillator** display.



The frequency of the oscillator is controlled by the left-hand **frequency** pot, and its audio level is controlled by the right-hand **level** pot. The buttons below each pot, can be used to set the oscillator to standard frequencies (**100Hz**, **440Hz**, **1kHz**, **10kHz**) and levels (**-3dB**, **-6dB**, **-12dB**, **-18dB**). The current value of each parameter is displayed below its pot.

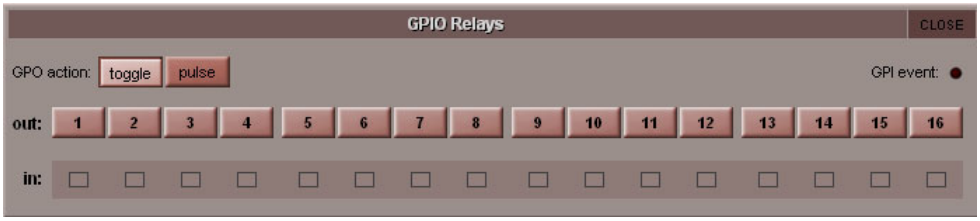
For Stereo channels, the 1 KHz oscillator can be set to produce a pulsing ID signal on the left signal or a GLITS signal as indicated by the on-screen graphic.

3.1.3 GPIO Relays .....

Selecting **GPIO Relays** opens a panel displaying the current GPI and GPO states. The 16 numbered '**out:**' buttons allow GPOs to be triggered. If the **toggle** button above them is active (lighter), then touching a GPO button will switch it on (red) or off (brown). If the **pulse** button is active, touching a GPO button will send an 'on' pulse.

> ***Note that GPOs which are on when entering pulse mode will stay on. Touching them while in pulse mode will switch them off.***

The **GPI event** light in the top righthand corner indicates when GPI messages arrive. Below the GPO buttons is a row of indicators (labelled '**in:**') showing the current state of each GPI.



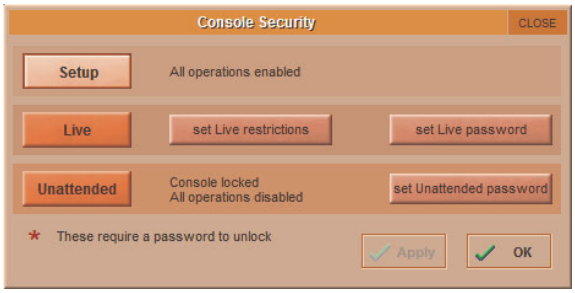
3.1.4 Security .....

Security modes are selected in the system menu, with a choice of three levels of access:

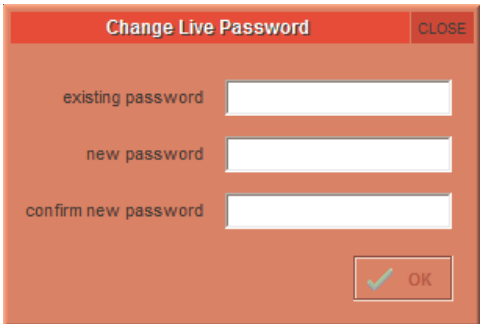
Setup: Users have full access to every function on the console.

Live: Access to elements of the console can be limited, and password protected.

Unattended: The console is locked, and cannot be operated.



User passwords can be defined for the Live and Unattended modes. To set a password, press the **Set Password** button. Enter the old password then the new one twice, and press **OK**. By default, the passwords are blank.



NOTE: If you should forget your password, call your Distributor to obtain a reset password. Entering the master override password will allow new passwords to be set.

To modify restrictions in Live mode, press the **Set Live Restrictions** button in the **Console Security** Panel. A range of parameters are shown, with a tick indicating that access is allowed and a cross that the item will be locked out in Live mode. Each group list can be expanded for item-specific restrictions by pressing on the down arrow in the left-hand column, as shown for **FX** below:

3.1.5 Signal Over Indicators .....

Pressing this entry in the **System** menu opens the **Signal Overs** panel, showing details of any signals which have peaked. Touching an entry in the Signal Overs list brings the channel to the surface to be adjusted. The **Signal Overs** panel also duplicates the **Clear Over Indicators** button.

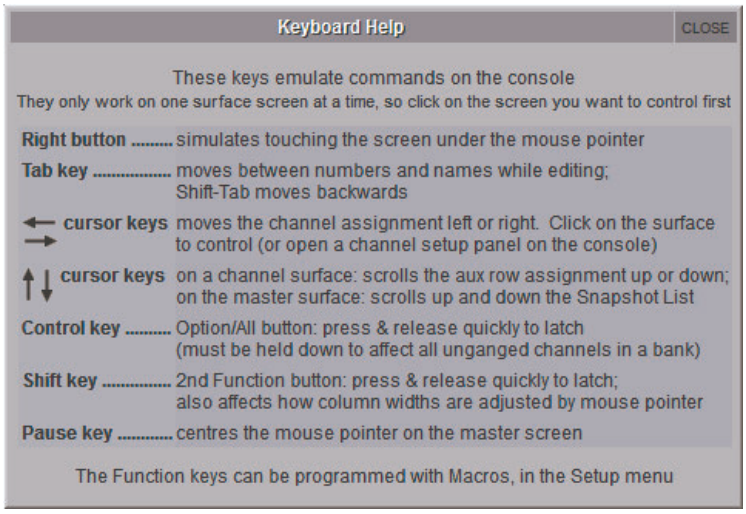
> ***Note that the Signal Overs panel can also be set to open automatically when a signal peaks. This is done in the Status tab in the Options menu.***

3.1.6 Overview Clear Screen .....

Some panels such as the information bar and the status indicators can be dragged with the trackball to external overview screen. To quickly reset the position of these panels back to the Master screen, press the **Overview Clear Screen** button, and select **Yes** in the confirmation pop-up which appears.

3.1.7 Keyboard Help .....

The Keyboard Help button opens up a display detailing the console control elements which are available via an external keyboard:


Keyboard Help
CLOSE
These keys emulate commands on the console
They only work on one surface screen at a time, so click on the screen you want to control first
Right button ..... simulates touching the screen under the mouse pointer
Tab key ..... moves between numbers and names while editing; Shift-Tab moves backwards
cursor keys moves the channel assignment left or right. Click on the surface to control (or open a channel setup panel on the console)
cursor keys on a channel surface: scrolls the aux row assignment up or down; on the master surface: scrolls up and down the Snapshot List
Control key ..... Option/All button: press & release quickly to latch (must be held down to affect all unganged channels in a bank)
Shift key ..... 2nd Function button: press & release quickly to latch; also affects how column widths are adjusted by mouse pointer
Pause key ..... centres the mouse pointer on the master screen
The Function keys can be programmed with Macros, in the Setup menu

3.1.8 F10: Reset FX .....

Pressing this entry in the **System** sub-menu will reset the Reverb and Delay FX module audio. This allows, for example, lengthy delay and reverb tails to be killed. To complete the reset, select **Yes** in the warning pop-up which appears.

Note that this will briefly bypass all of the FX units.

3.1.9 F11: Reset Engine .....

Pressing this entry in the **System** sub-menu will restart the audio engine

Note that this will briefly interrupt the audio - do not use this function unless absolutely necessary.

3.1.10 F12: Reset Surfaces .....

Pressing this entry in the **System** sub-menu will reset all of the worksurface controls. This function will briefly interrupt the audio on the Local I/O only.

3.1.11 Set Date & Time .....

Pressing this entry in the **System** sub-menu will open the Date and Time window for the console's operating system.

3.1.12 Quit to Windows .....

Pressing this entry in the **System** sub-menu quits the SD5 console software but leaves windows running. If the session is not saved, pressing **Quit to Windows** will bring up a warning display. Press **Yes** to quit without saving, or **No** to cancel the quit.

3.1.13 Restart .....

Pressing this entry in the **System** sub-menu shuts the console's control computer down and restarts it. If the session is not saved, pressing **Restart** will bring up a warning display. Press **Yes** to restart without saving, or **No** to cancel the restart.

3.1.14 Shutdown .....

Pressing this entry in the **System** sub-menu shuts the console's control computer down. If the session is not saved, pressing **Shutdown** will bring up a warning display. Press **Yes** to shut down without saving, or **No** to cancel the shut down.

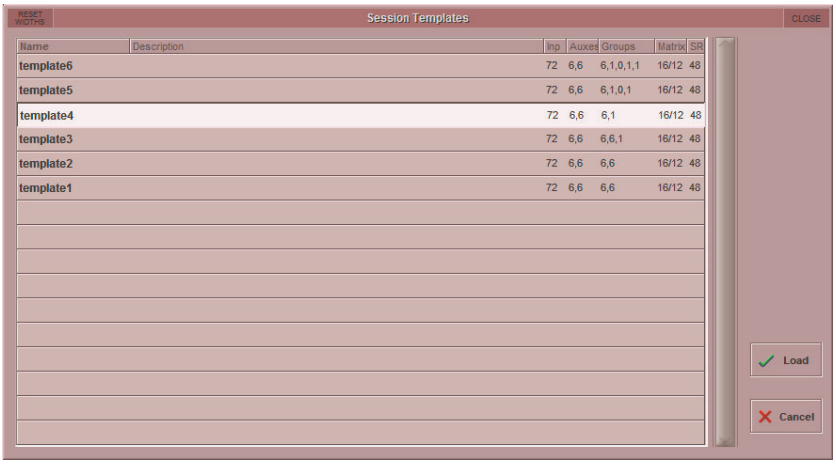
Note: If the console is Mirrored there is also a **Shut Down All** option which will automatically shutdown all mirrored consoles

3.2 Files Menu

3.2.1 Templates .....

Touching on **Templates** in the **Files** menu brings up the **Session Templates** display. This lists any ordinary session files which are located in the folder d:\Templates (or c:\Templates if not on a console), along with key session information.

Note: If this folder doesn't exist, it should be created manually. The required template sessions can then be copied into it.



To load a Session Template, simply select it in the list and touch the **Load** button.

NOTE: Sessions can only be put into the Templates folder using Windows Explorer - this cannot be done from the SD application.

If you create a Template session, save it as normal in the D:\Projects folder and then Quit To Windows, right click on the Start button and choose Explore. Now navigate to D:\Projects and copy the relevant file to the D:\Templates folder. This procedure will ensure that your Template cannot be easily overwritten in normal operation.

3.2.2 Session Structure .....

Touching on **Session Structure** in the **Files** menu brings up the **Session Structure** display. This is where a session is named and where the channel allocation and sample rate for the session are configured. While changes to session structure can be made once a session has been started, it is best to try and set these parameters before configuring the session. Session Structure changes are not implemented until the **Restructure** button in the bottom right-hand corner of the display is pressed.

To name the session, touch the **session title** box, type the session name using the either the on-screen or external keyboard, and press **OK**.

Begin by setting the sample rate at the top of the panel. There are a total of 124 input channels available and 56 busses (plus a Master buss).

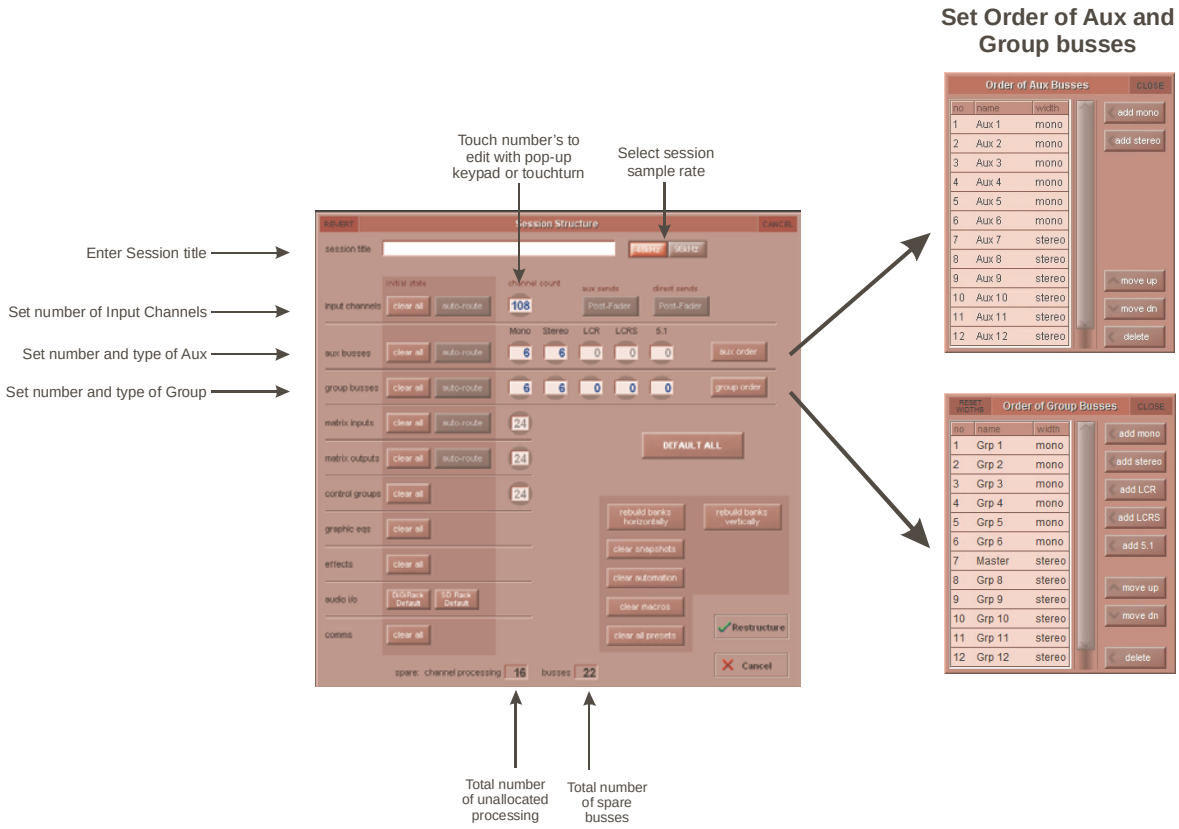
Below the session title, each channel type has its own setup row, which includes **clear all** and **auto-route** buttons, and a display of the current number of channels in the session. To adjust any of the channel allocations, touch on the associated channel count box, and either enter a number using the pop-up number keypad, or adjust using the assigned touchturn controller.

In addition to the main channel types, this display also includes some basic configuration of matrix inputs, Control Groups, graphic EQ's, effects, audio i/o and the comms busses. The **spare: channel processing** box at the bottom of the display shows the number of processing channels still available, and the **busses** box to its right shows the number of output channels still available.

Channel resources can be split into input or output channels in almost any configuration. The default configuration is :

108 input channels (Input channel formats are defined within each channel, not within the Session Structure)
6 Mono Aux busses & 6 Stereo Aux busses
6 Mono Group busses & 6 Stereo Group busses
24 Matrix Inputs and 24 Matrix Outputs
24 Control Groups

Note that for aux and group channel types, mono and stereo channels (and also LCR, LCRS and 5.1 channels in the case of group busses) are allotted separately, and that stereo channels use two channels of processing. Note also that processing channels are reserved for the master buss, talkback channel and stereo solos.


Set Order of Aux and Group busses
Touch number's to edit with pop-up keypad or touchturn
Select session sample rate
Enter Session title
Set number of Input Channels
Set number and type of Aux
Set number and type of Group
Session Structure
Order of Aux Busses
Order of Group Busses
Total number of unallocated processing
Total number of spare busses

Note - Pressing the Default All button followed by the Restructure button will automatically configure a new session with the following setup where the first 56 rack inputs are routed to input channels 1-56 and the Master Buss is routed to Local outputs 1 & 2 and also to rack outputs 1 & 2. All input channels will be routed to the Master Buss and the console headphones will be fed by the Master Buss when nothing else is soloed.

If the **clear all** button is pressed, any non-default routing or processing (EQ, dynamics etc) will be cleared from the channels in the session when the **Restructure** button is pressed. This is especially useful when restructuring an existing session to make a new session.

The **auto-route** button automatically routes the physical inputs and outputs in the rack to the inputs and output channels in the session when the **Restructure** button is pressed, thus saving the operator from manually routing them in the channel **Setup** and **Output** displays. For example, auto-routing 72 inputs will route the first physical input (eg 1:Mic 1) to input channel 1, the second physical input (1:Mic 2) to input channel 2 until you either run out of inputs or channels. Auto-routes are as follows:

- Input Channels auto-route with physical inputs
- Aux, Group and Matrix Channels auto-route to physical outputs
- Matrix Inputs auto-route with group outputs

Note that auto-routing can only be used in conjunction with the Clear All button, and is not available for input channel direct outs.

Important Note: auto-routing overwrites any previous input and output routing.

Note also that the outputs of Aux, Group and Matrix channels are auto-routed in sequence: Aux outputs followed by Group outputs, followed by Matrix outputs.

The send point for input channel direct outs can be set globally using the **direct sends** button toward the top right-hand corner of the display. The button is made active by touching the input channels **Clear All** button. The **direct sends** button then toggles between **Post-Fader**, **Pre-Fader** and **Pre-Mute**.

Similarly, the send point for aux channel outputs can be set globally using the **aux sends** button to the left of the **direct sends** button. The button is made active by touching the aux busses **Clear All** button. The **aux sends** button then toggles between **Post-Fader**, **Pre-Fader** and **Pre-Mute**.

Aux and Group Order

By default, the aux and group channels are ordered with the stereo channels following the mono channels. These orders can be altered in the **Order of Aux Busses** and **Order of Group Busses** displays, accessed by pressing the **Aux Order** and **Group Order** buttons on the right hand side of the display.

Busses can be added using the buttons in the top-right of the display. To change a busses position or delete it, touch the buss in the display's list and use the buttons in the bottom-right of the display.

> ***Note that only the mono/stereo format of the Busses and their display within the input channel can be reordered in this display. Channel settings are not reordered. The console layout can be reordered using the Rebuild Banks function described below.***

The Master buss is the first stereo buss, regardless of the order you place the busses in.

The **audio i/o** and **comms** rows beneath the standard channel-type rows allow the settings of the audio io cards and talkback function to be reset.

The **clear snapshots** and **clear macros** buttons towards the bottom-right of the window can be used to clear any existing snapshots and macros when making a new session.

> ***Note that the clear automation function has not yet been implemented.***

Rebuild Banks : When changing the number of allocated channels in any section (input channels, busses etc), you can restructure the session without rebuilding banks, meaning that any additional channels you have allocated will not be "placed" on the worksurface, and need to be manually assigned to faders. If however, you restructure a session with **Rebuild Banks** (either **Horizontally** or **Vertically**) enabled, the worksurface will be built with all channels available on the worksurface in a default layout. Rebuilding horizontally will result in input channels being spread across the top layer of both sides of the console, using as many banks as required, with output channels being assigned to Layer 2. Rebuilding vertically will result in input channels being assigned to Layer 1 on the left side of the console, and output channels to Layer 1 on the right. See the Session Structure section of Chapter 3 for more details.

> ***Note that when Rebuild Banks is used, any non-default configuration of the channel layout is lost.***

To implement changes in the **Session Structure** display touch the **Restructure** button in the bottom right-hand corner. To exit the display without implementing the changes, touch **Cancel**, located below the **Restructure** button.

To clear unimplemented changes from the display, touch **REVERT**, located in the top left-hand corner of the display.

3.2.3 Load Session .....

Touching this entry in the **File** menu opens the **Load Session** display. The left-hand column of the display shows the file directory. At the top of the directory are two buttons which switch the list of folders below them between the contents of the console computer's **internal** d:\Projects folder and the contents of a **removable** USB drive. Each folder can be expanded by clicking the + symbol to its right. The list can be scrolled using the scroll bar to its right.

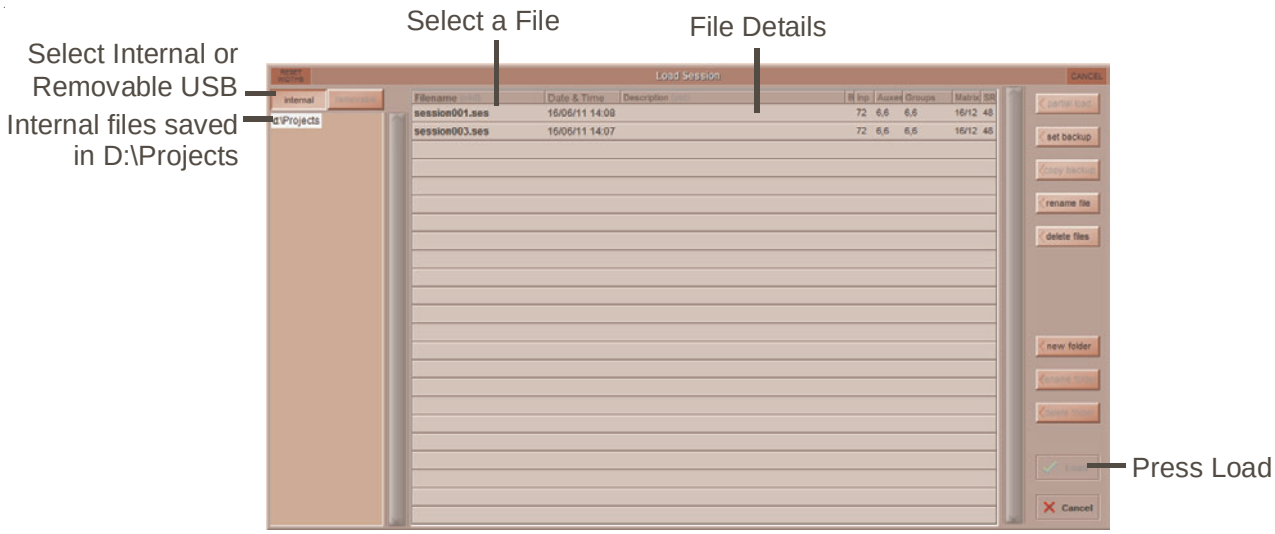
When a folder or sub-folder in the left-hand directory is expanded, a list of the session files contained within it appears in the list in the centre of the screen. The list displays the **Filename**, creation **Date & Time**, and **Description** of the session. In addition, the list also displays the number of **Inp**uts, **Auxes** (mono, stereo), **Group**s (mono, stereo) and **Matrix** channels (ins/outs).

To load a session, touch the session in the list and press **Load**, located in the bottom right-hand corner of the display. To close the display without loading a session, press **Cancel**, located below the **Load** button and also found in the top right-hand corner of the display.

Once a session is loaded, a summary of the currently loaded session is displayed in the **Information Bar** which is normally found on the Master screen. Once any changes have been made to the session, the **File:** indication in this display will only show the folder of the most recently saved session, not the file name.

> ***Note that the BU column, set backup and copy backup buttons have not yet been implemented.***

> ***Note also that if any of the buttons in the right-hand column of the window are active, sessions cannot be selected for loading from the list.***



Note that column widths can be adjusted by dragging their borders within the title row. To return all columns to their default widths, press RESET WIDTHS, in the top left-hand corner of the window.

3.2.4 Save Session

Touching this entry in the **File** menu saves the current session. Once the session has been saved, a confirmation pop-up appears displaying the location of the saved session file.

Note that this function overwrites the most recently saved session. If you want to retain the most recently saved session, save the current session as a new session.

3.2.5 Save As New File

Touching this entry in the **File** menu opens the **Save Session** display. At the top of the display are two text boxes showing a **file name** and **session title**. The **file name** will normally be '**sessionxxx.ses**' where xxx is an auto-incrementing number and the **session title** is the same as the current session. If the session has not been changed since it was last saved, the file name will be the same as the current session. To edit the **file name** and **session title**, touch the relevant text box, enter the new name or title in the on-screen or external keyboard, and press **OK**. To overwrite another session, or to save the session in a new folder but with a previously used name, touch the session of that name and its name will appear in the **file name** box.

The location of the session file to be saved is defined in the directory in the left-hand side of the display. At the top of the directory are two buttons which switch the list of folders below them between the contents of the console computer's **internal** d:\Projects folder and the contents of a **removable** USB drive. Each folder can be expanded by clicking the + symbol to its right. The list can be scrolled using the scroll bar to its right. Touch the button and folder within which you want to save the session.

To create a new folder, select the location for the folder in the way described above, touch the **new folder** button in the right-hand side of the display, type the folder's name using the external keyboard and press the external keyboard's return button. To rename a folder, touch the folder within the directory, touch the **rename folder** button in the right-hand side of the display, type the folder's new name using the external keyboard and press the external keyboard's return button.

To delete a folder, touch the **delete folder** button in the right-hand side of the display, touch the folder to be deleted and touch **Yes** in the confirmation pop-up which appears.

Note that this action cannot be undone.

Once the session has been named and its save location has been selected, save the session by pressing **Save**, located in the bottom right-hand corner of the display. To close the display without saving, press **Cancel**, located below the **Save** button and also found in the top right-hand corner of the display. If you attempt to save the session under a file name which already exists within that folder, a pop-up appears, warning that continuing will cause the file with that name to be overwritten. Touch **Yes** to continue, **No** to cancel.

Note that overwriting the most recently saved session can be performed more quickly using the** Save Session **function described above.

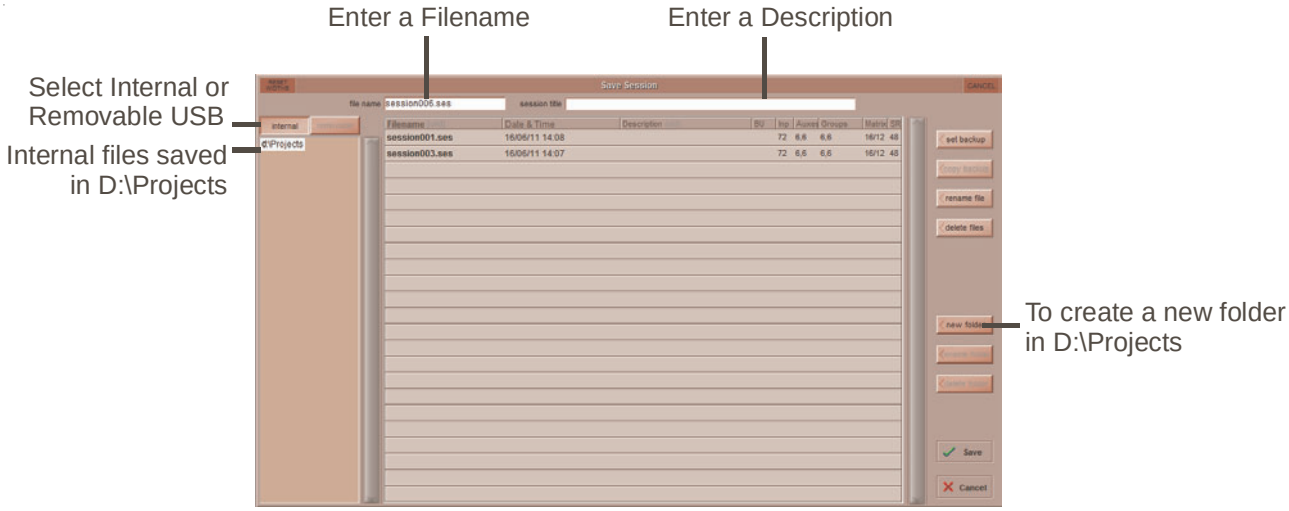
Once the session has been saved, a confirmation pop-up appears displaying the location of the saved session file.

To rename a file, touch the file to be renamed followed by **rename file**, located in the right-hand side of the display, enter the new name into the on-screen or external keyboard and press **OK**. If **rename file** is pressed without a file being selected, the first file in the list will be automatically selected for renaming.

Note that the file name is the only file element that can be edited once the file has been saved.

To delete files, select the folder containing the files to be deleted and touch **delete files**. To delete all files in the folder, touch **select all**, followed by **confirm delete**. To delete one file or a selection of files, touch the files you wish to delete followed by **confirm delete**. To delete a consecutive range of files, touch **select range**, touch the first and last files included in the range to be deleted, and touch **confirm delete**. To complete the deletion process, touch **Yes** in the confirmation pop-up which appears.

Note that the** set backup **and** copy backup **functions have not yet been implemented.


Enter a Filename
Enter a Description
Select Internal or Removable USB
Internal files saved in D:\Projects
To create a new folder in D:\Projects

Note that column widths can be adjusted by dragging their borders within the title row. To return all columns to their default widths, press RESET WIDTHS, in the top left-hand corner of the window.

3.2.6 Load Presets .....

Touching this entry in the **File** menu opens the **Load Presets** display. This allows Channel, FX, Graphic EQ and Matrix presets created in other sessions to be imported into the current session. The left-hand column of the display shows the file directory. At the top of the directory are two buttons which switch the list of folders below them between the contents of the console computer's **internal** d:\Projects folder and the contents of a **removable** USB drive. Each folder can be expanded by clicking the + symbol to its right. The list can be scrolled using the scroll bar to its right.

When a folder or sub-folder in the left-hand directory is touched, a list of the Preset files contained within it appears in the list in the centre of the screen. The list displays the **Filename**, creation **Date & Time**, and **Description** of the preset file. In addition, the list also displays the number of **Inp**ut, **Out** (fx), **GrEQ** (Graphic EQ) and **Matrix** presets contained within the preset file.

To load a set of presets, touch the preset file in the list and press **Load**, located in the bottom right-hand corner of the display. To close the display without loading a session, press **Cancel**, located below the **Load** button and also found in the top right-hand corner of the display.

Note that a session's presets are also saved as part of the session file.

Note also that the** set backup **and** copy backup **functions have not yet been implemented.

Note also that if any of the buttons in the right-hand column of the window are active, sessions cannot be selected for loading from the list.

3.2.7 Save Presets .....

Touching this entry in the **File** menu opens the **Save Presets** display. At the top of the display is a text box showing the **file name** of the most recently created presets file. It will normally be '**presetsxxx.pre**' where xxx is an auto-incrementing number. To edit the **file name** touch the text box, enter the new name or title in the on-screen or external keyboard, and press **OK**. To overwrite another file, or to save the file in a new folder but with a previously used name, touch the file of that name and its name will appear in the **file name** box.

The location of the presets file to be saved is defined in the directory in the left-hand side of the display. At the top of the directory are two buttons which switch the list of folders below them between the contents of the console computer's **internal** d:\Projects folder and the contents of a **removable** USB drive. Each folder can be expanded by clicking the + symbol to its right. The list can be scrolled using the scroll bar to its right. Touch the button and folder within which you want to save the session.

Once the presets file has been named and its save location has been selected, save it by pressing **Save**, located in the bottom right-hand corner of the display. To close the display without saving, press **Cancel**, located below the **Save** button and also found in the top right-hand corner of the display. If you attempt to save the set of presets under a file name which already exists within that folder, a pop-up appears, warning that continuing will cause the file with that name to be overwritten. Touch **Yes** to continue, **No** to cancel.

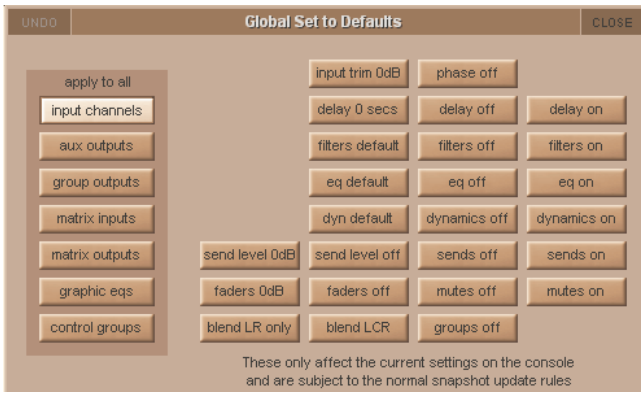
Note that a session's presets are also saved as part of the session file.

3.2.8 Global Set To Defaults .....

The **Global Set to Defaults** Panel, opened via the **File** menu, allows certain settings to be applied globally to the console. Select the Channel type from the list on the left side of the panel, and then select the action from the list to the right. Most actions are self explanatory, with the possible exception of the following:

- **blend LR only** moves all the **lr/lcr** blend controls to **lr**
- **blend LCR** moves all the **lr/lcr** blend controls to **lcr**
- **groups off** unroutes all sends to Groups

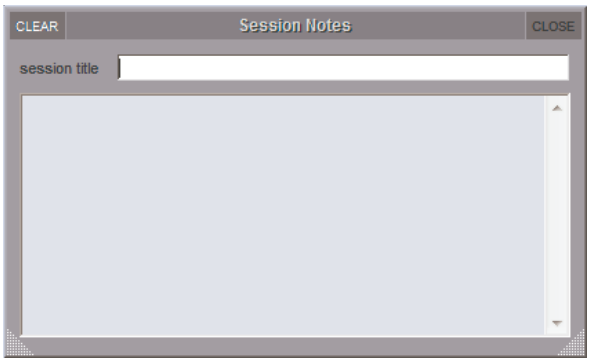
Note that multiple channel types can be selected simultaneously,



The **undo** button in the top-left undoes all changes since the panel was opened. Once the panel is closed, changes cannot be undone.

3.2.9 Session Notes .....

The **File** menu **Session Notes** button opens a panel in which can be used for saving any important session information:

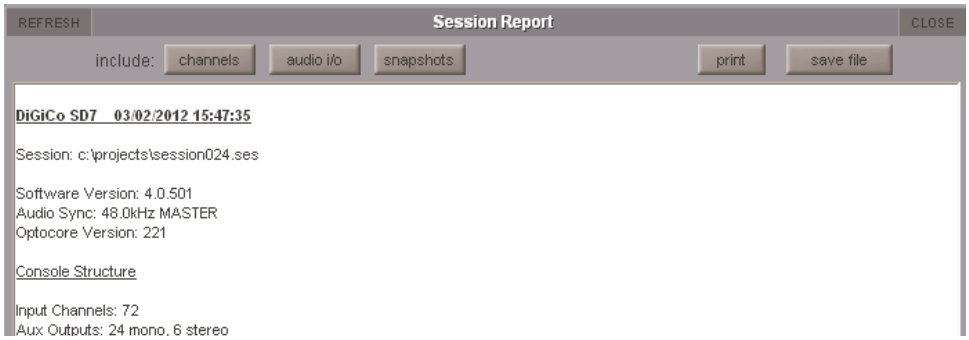


3.2.10 Session Report .....

In the **Files** menu there is also a **Session Report** button. This lists the session details on the master screen in an RTF compatible format.

Across the top, the three **include** buttons can be used to define what optional extras are included in the report: **channels**, **audio i/o** and **snapshots.**

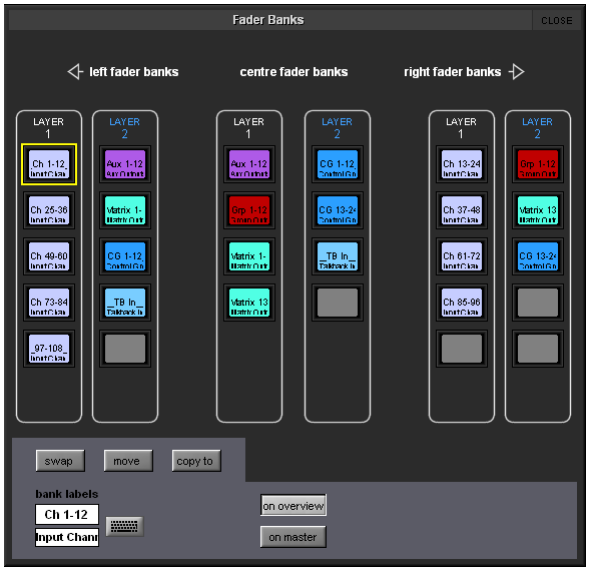
The **save file** button at the top right of the panel will save the report in the D:\Projects as the session filename suffixed with .rtf. The **print** button opens up a standard windows print dialogue for sending the report direct to a printer if you are working on a standalone PC.



3.3 Layout Menu

3.3.1 Fader Banks .....

Touching on **Fader Banks** in the **Layout** menu brings up the **Fader Banks** display. This display allows the location of each fader bank to be altered. The bank buttons available within each layer of each section of the desk are displayed with their current fader set, with the left and right section banks on the left and right respectively, and the centre banks down the middle. Towards the bottom of the display there are a number of grey function buttons which turn light-grey to indicate that they have been selected.



To swap the locations of two fader sets, touch one set's bank so that it is highlighted in yellow, touch **swap** (located below the left fader bank's layer 1) and touch the other set's bank.

To move a fader set to a new bank location, highlight the fader set you wish to move, touch **move** (located to the right of the **swap** button) and touch the bank to which you wish to move it. If there is currently a fader set in the destination bank, the current fader set will shift down one, as will any other sets below it until there is a blank bank which can be filled. If a fader set located in the lowest bank of a layer is shifted down, it will move to the first bank of the next layer. If there are no spaces between the selected destination bank and the end of the console section, a pop-up appears indicating that the move cannot be completed.

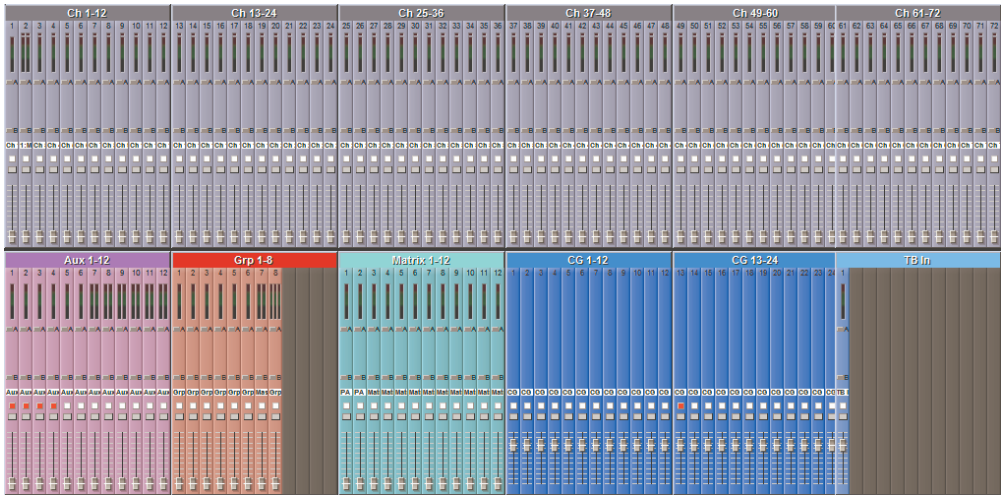
To copy a fader set to a new bank location, highlight the fader set you wish to copy, touch **copy to** (located to the right of the **move** button) and touch the bank to which you wish to copy it. If there is currently a fader set in the destination bank, it will be overwritten.

The labelling within the bank LCD buttons can be edited using the text boxes in the bottom left-hand corner of the display. By default, the top row of the button displays a short version of the channel type (**Ch** for input channels, **Aux** for aux channels, **Grp** for group channels, **Matrix** for matrix channels and **CG** for control group channels) followed by the channel number range, and the bottom row displays the channel type in full. To edit the either row, touch its text box, type in the new name using the on-screen or external keyboard and press OK. The keyboard symbol to the right also activates the naming function for the top row.

Note that this label affects the bank button displays, not the channel faders within the bank.

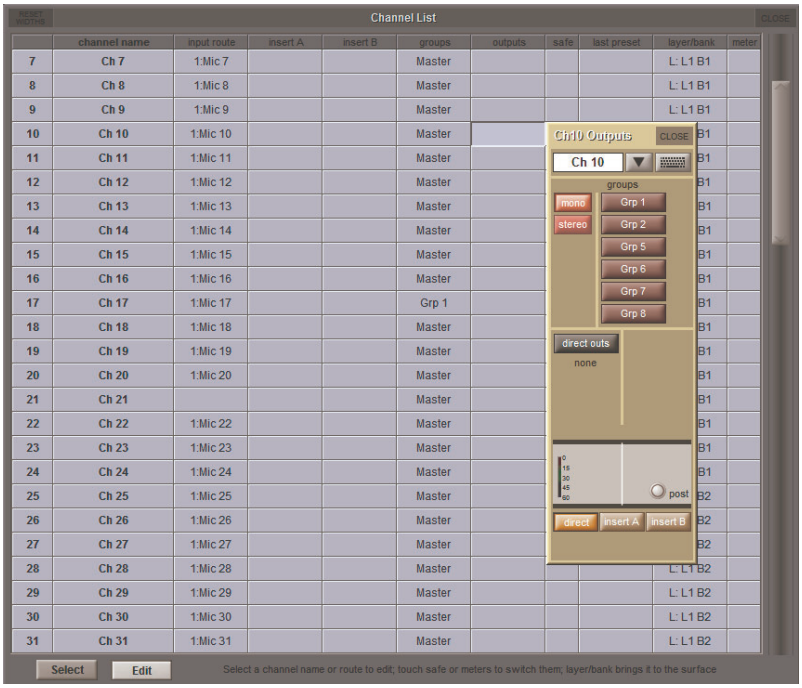
The Overview Display

A miniature graphic of each fader set can be displayed on the master panel, or on a separate screen connected to the **Overview** VGA output on the back of the console. These graphics display the fader position, mute, solo status and insert status, and the meter for the channels within all displayed banks. The parameters displayed in this overview can also be adjusted on the overview screen using the external mouse. The **on overview** and **on master** buttons, located below the **Fader Bank** display's master banks, are used to include and exclude fader banks from the external overview display and the master panel respectively. All banks can be included in the overview display by pressing the **overview** button to the right of the **all:** legend, underneath the right fader banks in the display.



3.3.2 Channel List .....

Touching on **Channel List** in the **Layout** menu brings up the **Channel List** display, containing a complete list of all the input, aux, group, matrix and control group channels which exist within the session. The channel list for each channel type can be expanded and collapsed by touching anywhere in the channel type's row. Channel Type rows can be distinguished from the specific Channel rows by their slightly darker colour.


Channel List
CLOSE
channel name
input route
insert A
insert B
groups
outputs
safe
last preset
layer/bank
meter
7 Ch 7 1:Mic 7 Master L: L1 B1
8 Ch 8 1:Mic 8 Master L: L1 B1
9 Ch 9 1:Mic 9 Master L: L1 B1
10 Ch 10 1:Mic 10 Master
11 Ch 11 1:Mic 11 Master
12 Ch 12 1:Mic 12 Master
13 Ch 13 1:Mic 13 Master
14 Ch 14 1:Mic 14 Master
15 Ch 15 1:Mic 15 Master
16 Ch 16 1:Mic 16 Master
17 Ch 17 1:Mic 17 Grp 1
18 Ch 18 1:Mic 18 Master
19 Ch 19 1:Mic 19 Master
20 Ch 20 1:Mic 20 Master
21 Ch 21 Master
22 Ch 22 1:Mic 22 Master
23 Ch 23 1:Mic 23 Master
24 Ch 24 1:Mic 24 Master
25 Ch 25 1:Mic 25 Master
26 Ch 26 1:Mic 26 Master
27 Ch 27 1:Mic 27 Master
28 Ch 28 1:Mic 28 Master
29 Ch 29 1:Mic 29 Master L: L1 B2
30 Ch 30 1:Mic 30 Master L: L1 B2
31 Ch 31 1:Mic 31 Master L: L1 B2
Ch10 Outputs
CLOSE
Ch 10
groups
mono
stereo
Grp 1
Grp 2
Grp 5
Grp 6
Grp 7
Grp 8
direct outs
none
post
direct
insert A
insert B
Select
Edit
Select a channel name or route to edit; touch safe or meters to switch them; layer/bank brings it to the surface

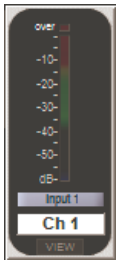
If the **Edit** button at the base of the display is active (lighter), touching the **input route**, **insert A**, **insert B**, **groups** or **outputs** box for a channel will open up the appropriate **Setup** or **Routing** panel for that channel, allowing that routing to be edited. Touching the **safe** box will cause all of that channel's safes (and those of any linked channels) to be activated.

If the **Select** button at the base of the panel is display, the display can be used for adjusting the bank assignments of the session's channels. This function employs the **ASSIGN FADERS** LCD function mode. The channel's current assignment is shown in the layer/bank box: The surface (**L** or **R**; Master fader assignments are not shown), layer (**L**) and bank (**B**).

> ***Note that when new channels are added to a session, or when a session is created, all of the existing channels can be assigned to the worksurface using the rebuild banks function within the Session Structure display.***

In **Select** mode, the display can also be used for assigning a channel to the worksurface controls. This is done by touching a channel within the list, and also results in the channel's bank being displayed in the appropriate side section of the console. If the channel appears more than once within the session layout, the lowest bank in which it appears is the one which will appear on the worksurface.

With either **Select** or **Edit** active, touching in a channel's **meter** box will cause a small meter panel for the channel to be displayed in the Master screen. This is meter display remains active regardless of whether or not the channel itself is currently on the worksurface. It is possible to permanently display up to 12 channels in this way. Pressing the **View** button at the bottom of any of these meters also allows them to be snapped to a grid, sized to either large or small, removed, and moved between the Master screen and Overview screen.



The most recent Preset used on the channel is also displayed, in the **last preset** box.

3.3.3 Set Spill .....

Touching on **Set Spill** in the **Layout** menu brings up the **Set Spill** display, where channel Sets can be configured and spilled onto the console. A Set is simply a group of channels selected from across the console's layers, which can be 'Spilled' onto the worksurface together. They can be made up of a mixture of channel types, and need not have anything else in common. The main part of the display is navigated in the same way as the **Channels List** described above.

To create a Set simply choose a Set column and touch the boxes in that column for each channel you wish to include, expanding the channel types as required. The boxes will all turn the same colour. The box in the channel type's parent rows will also turn the same colour, indicating that some channels of that type are included in the Set. the number of channels included in the Set is shown in the Set's **Spill:** box, above the channels display. Any channels which are included in a Gang are indicated by the Gang's colour being displayed on the right-hand edge of the channel's number box (at the left end of its row in the channel display).

To rename a Set, touch on its **Set Name:** box, type a new name on the on-screen or external keyboard, and press **OK**.

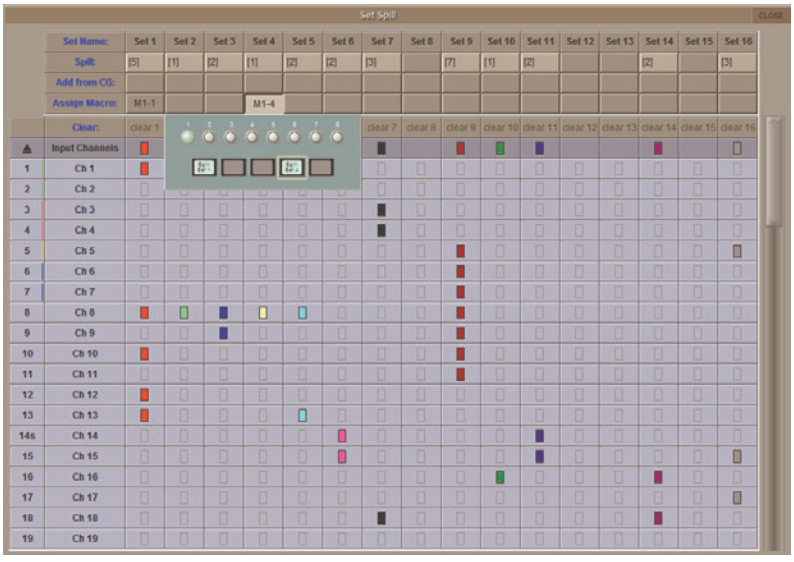
To add all channels from a Control Group, touch the Set's **Add from CG:** box and touch the appropriate CG button from the pop-up which appears. The **Spill:** number will increment to indicate how many channels have been added.

To clear a Set, touch its **Clear:** box and touch **Yes** in the confirmation pop-up which appears.

Sets can be spilt directly from this panel, or assigned to a Macro. To spill a Set from this Panel, touch its **Spill:** box. A tick will appear by the spill number to indicate that the channels are spilt. To assign the Set Spill to a Macro, touch the Set's **Assign Macro:** box to bring up a display of the console's Macro controls; Now select a Macro bank using the circular buttons across the top, then one of the five square Macro buttons beneath it. The Macro's bank and position will be displayed in the Set's **Assign Macro:** box.

The Set Spill Direction entry in the Faders tab of the Options menu defines how Sets are spilt onto the control surface.

Sets can be unspilt by pressing their Macro or **Assign Macro:** box, or by pressing the **Layer** button for the console section where the set is shown.



3.3.4 Transport Control .....

Touching on **Transport Control** in the **Layout** menu brings up a display of the transport control of an external playback device. Playback devices are controlled via the MIDI connector on the console's back panel. The incoming MTC is also displayed.

Note that control of external playback devices can be programmed within the **Snapshots** screen, as described later in this chapter.

3.4 Snapshots Menu

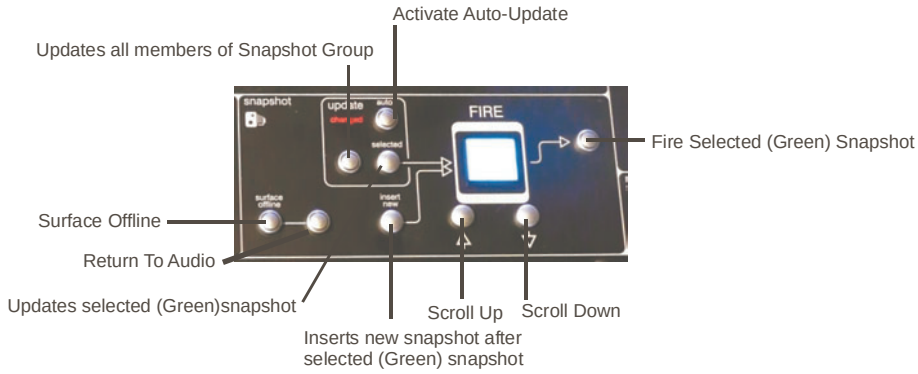
Any number of Snapshots of the entire current console settings can be stored and recalled using the Snapshots panel. (This is only limited by system memory)

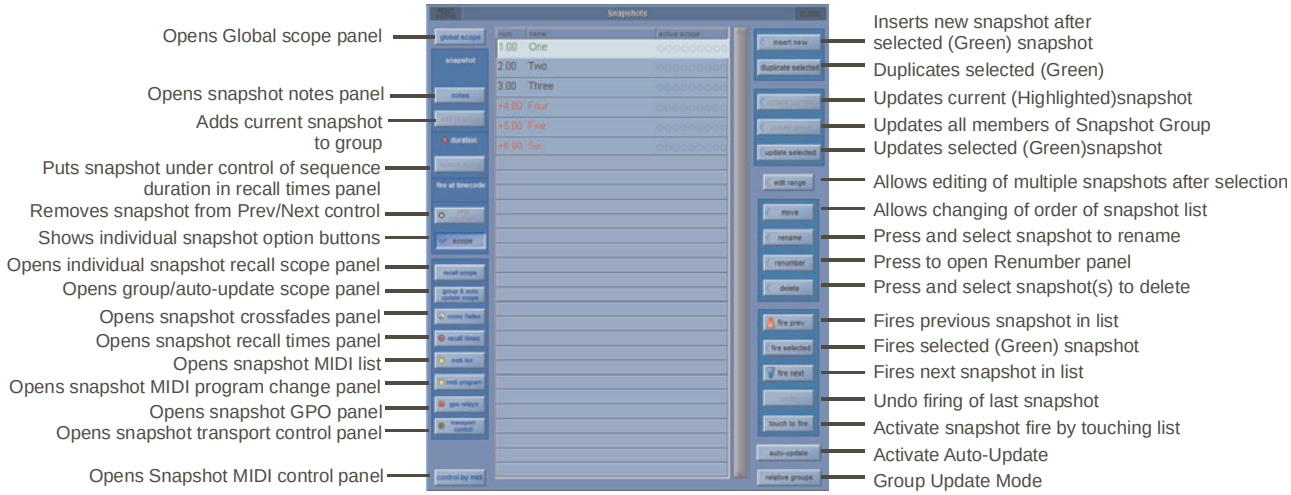
These Snapshots can be independent or grouped with other snapshots.

The recall scope of the snapshot (how many controls it will affect when fired) can be set by controller or by channel.

To display the Snapshots panel, touch the Snapshots button at the top of the Master Screen.

Worksurface controls can be found in the centre section of the console worksurface.




Opens Global scope panel
Opens snapshot notes panel
Adds current snapshot to group
Puts snapshot under control of sequence duration in recall times panel
Removes snapshot from Prev/Next control
Shows individual snapshot option buttons
Opens individual snapshot recall scope panel
Opens group/auto-update scope panel
Opens snapshot crossfades panel
Opens snapshot recall times panel
Opens snapshot MIDI list
Opens snapshot MIDI program change panel
Opens snapshot GPO panel
Opens snapshot transport control panel
Opens Snapshot MIDI control panel
Inserts new snapshot after selected (Green) snapshot
Duplicates selected (Green)
Updates current (Highlighted)snapshot
Updates all members of Snapshot Group
Updates selected (Green)snapshot
Allows editing of multiple snapshots after selection
Allows changing of order of snapshot list
Press and select snapshot to rename
Press to open Renumber panel
Press and select snapshot(s) to delete
Fires previous snapshot in list
Fires selected (Green) snapshot
Fires next snapshot in list
Undo firing of last snapshot
Activate snapshot fire by touching list
Activate Auto-Update
Group Update Mode

Note - The current snapshot appears in the panel as the highlighted entry in the list. The snapshot name displayed in green indicates that it is the selected snapshot on the worksurface and its name is indicated in the display. The Fire button recalls this selected snapshot and highlights it in the screen list as the current snapshot.

Note also that an 'update Waves only' button appears below the Scope buttons when Waves is active.

If the current snapshot shows an asterisk next to the number (eg. 001*) this indicates that a controller has changed since the snapshot was fired.

If a Snapshot name appears in **black** in the list it is a standard Snapshot and if it appears in **red** or **blue** then it is a member of a group of snapshots

3.4.1 Storing a Snapshot .....

When a snapshot is stored all the console settings are saved but when the snapshot is recalled its effect can be limited to certain channels and controllers using the **Global** and **Recall Scopes**.

To store a snapshot of the current state of all the console controls, touch the Snapshot panel or worksurface **Insert New** button and a new snapshot will be inserted below the currently selected (green) snapshot. Alternatively, if the **Touch To Fire** function is active, touch an unused button in the list and a new snapshot will be added to the end of the list, then type a name for the snapshot.

Another method of creating a Snapshot is to press the **Duplicate Selected** button and this will create a copy of the selected (green) Snapshot below it.

> ***Note - If Duplicate Selected is used, the Snapshot that is stored may not reflect the current state of the console's controls - it will simply create a copy of the Snapshot that was selected when the button was pressed.***

3.4.2 Recalling a Snapshot .....

There are several ways to recall a snapshot:

1) Activate the **Touch To Fire** function using the button on the Snapshot panel and then touch the snapshot button you require.

2) The buttons on the Worksurface on the right of the screen provide **Scroll Up/Down** buttons to change the selected snapshot named in the worksurface display and listed on screen in green.

The **Fire** button then recalls the assigned snapshot.

3) The worksurface **Previous** and **Next** buttons just above the master fader can be used to step up and down the list firing snapshots in consecutive order.

4) Snapshot firing can also be controlled by specific events on MIDI channel 16 (See Snapshots and MIDI).

5) Assign a **Macro** button to fire the Snapshot.

3.4.3 Replacing a Snapshot .....

To update or change a snapshot, set the console controls as required and then touch the one of the **Update** buttons (**Current, Selected or Group**)

> ***Note - The Current snapshot is not necessarily the one whose name appears in the display on the worksurface, this is the Selected snapshot. For a snapshot to be Current it must have been the last one that was fired and be highlighted in the on screen panel's list.***

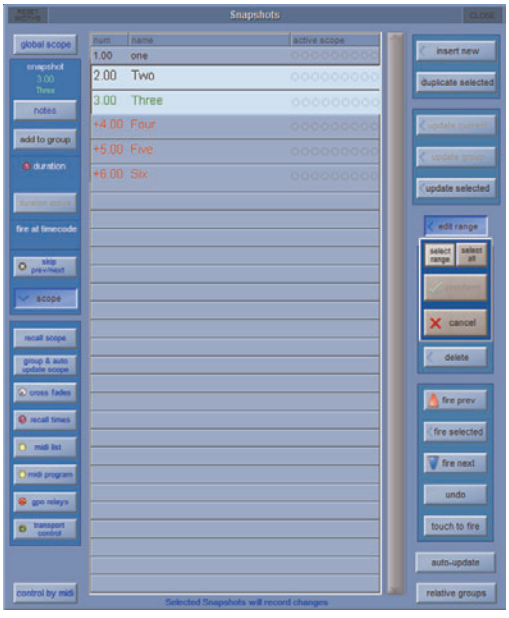
3.4.4 Editing Multiple Snapshots .....

Individual controller changes can be written to several snapshots simultaneously using the **Edit Range** button. This does not replace all of the data associated with the snapshot, just the elements that are changed at the time.

When the **Edit Range** button is pressed, a panel pops up allowing you to **Select Range**, **Select All**, or select individual Snapshots. You can now select the relevant snapshot(s) from the list.

If you press the **Select Range** button, touching the first and last snapshots in a range will automatically select all the snapshots in that range.

Once snapshots have been selected for editing, press the **confirm** button, or press **cancel** to cancel the **Edit Range** button.



With the **Edit Range** button active, pressing the Snapshot buttons does not fire the snapshots; it only selects them for editing.

The selection may be changed by pressing and releasing snapshot buttons at any time during the operation of the Edit command, so a variety of controllers or routes may be changed in a variety of snapshots before completing the operation by pressing the **Confirm** button.

The Snapshots window may even be closed to gain access to other editable functions - In this case, a warning message will appear to advise the user that they are still in snapshot edit mode.

While any Snapshot is selected, changes to any snapshottable controller, routing changes, and any changes to the Snapshot Scope controls can be written to every selected Snapshot, overwriting the previous settings.

Pressing the **Confirm** button keeps the changes.

For example, if Snapshots 1 and 2 are selected and the input gain for channel 1 is changed, subsequent recall of Snapshots 1 or 2 will set channel 1's input gain to the new value.

Only channels which are altered while the Edit command is active will be affected and only in snapshots that are selected at the time.

Note - Snapshot Scopes and Crossfade Times can also be edited for multiple Snapshots using the Edit Range function

3.4.5 Moving a Snapshot .....

If you wish the Snapshot list to appear in a specific order, you may change the order of the list by moving the entries. Touch the **Move** button and then touch the Snapshot that you wish to move. You then touch the point in the list where the snapshot should be moved to.

3.4.6 Renaming a Snapshot .....

To rename a snapshot, touch the **Rename** button, then the name that you wish to change and enter a new name using the keyboard.

3.4.7 Renumbering Snapshots .....

As snapshots can be inserted at any point in the list you may find that you wish to renumber part or all of the list.

Press the **Renumber** button at the bottom of the snapshots panel and a new panel will open. Enter the range that you wish to renumber using the touch turn control or by touching the entry and typing and then enter the steps to renumber to (1.00 is the default value). Then press the **OK** button and the list will be adjusted accordingly.

3.4.8 Deleting a Snapshot .....

To delete snapshots, touch the **Delete** button and then **Select Range** or **Select All**. If you have pressed **Select Range**, touch the Snapshots in the list that you wish to delete and then press **Confirm**. If you have pressed **Select All**, the complete list of Snapshots will be highlighted and pressing **Confirm** will delete all Snapshots.

Note - To cancel a Delete operation before it has been confirmed, press the Delete button again.

3.4.9 Snapshot Undo .....

When a snapshot is fired, a separate hidden snapshot of the complete console is stored before the fired snapshot has its effect. If the Undo button is pressed, the hidden snapshot is fired using the same scope as the previously fired snapshot to undo its effect.

3.4.10 Snapshot Groups .....

A standard Snapshot (black entry in the list) is an independent snapshot of the current state of all the console controls.

A Snapshot can also be a member of a **Group** (red or blue entry in the list).

Making Snapshots members of a Group allows all members of that Group to be updated together according to the Group Update mode that is selected.

To make a Snapshot a member of a Group, select the Snapshot in the list and press the **add to group** button on the left of the Snapshot panel.

Note - Snapshots can only be members of the same Group if they are next to each other in the list. There can be several different groups of Snapshots in one list.

If a Snapshot is a member of a Group, the colour of its entry in the list is determined by the current setting of the **Relative Groups** button in the bottom right of the Snapshots panel. This determines how the Group of Snapshots will be updated when **Update Group** is pressed.

Red entry in the list = Relative Update mode selected

Blue entry in the list = Non Relative Update mode selected

Relative Group Update Mode (Red entries in the list)

If **Update Group** is pressed when the **relative groups** button is **active**, all dB controls such as faders and aux sends will be updated relatively. This means that if a fader is moved by +10dB in one snapshot, the same fader will be moved by +10dB in all Snapshots that are members of the same group, irrespective of the original level of that fader. So +10dB will be applied to the stored level of that fader in all of the Snapshots in the group.

Non dB controls such as Dynamics times, EQ Frequency & Q and Pans will only be changed in members of the group that had the same value for that control before it was moved. So, if one channel pan is in the same position in all the members of a group of Snapshots and you change one of them and press Update Group in Relative mode then the same channel pan will change in the same way in all the other snapshots that are members of that group. If however, any one of the Snapshots in the group has that channel pan in a different position to the current Snapshot then this one will not be changed when you press Update Group.

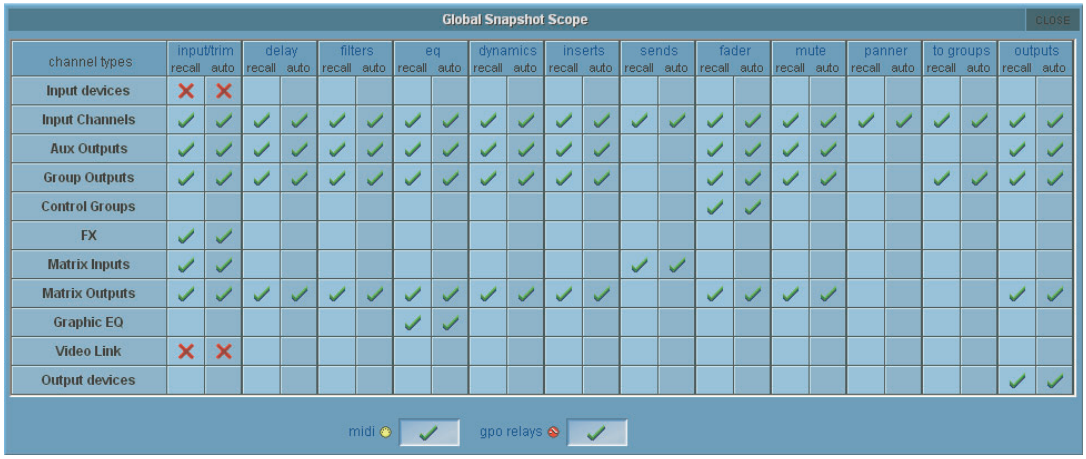
Non Relative Group Update Mode (Blue entries in the list)

If **Update Group** is pressed when the **relative groups** button is **not active** then all controls behave in exactly the same way. Changes are only applied to the other Snapshots in the group if the controls that are being changed had the same value as the current Snapshot before the change was made. This is exactly the same behaviour as non dB controllers in Relative mode but in this case all controls are included.

Group & Auto Update Scope

The behaviour of the Group Update function explained above is also dependant on the **Global Auto Scope** and the **Group and Auto Update Scope** settings that can be set per Snapshot for different types of controls.

Pressing the **Global Scope** button at the top left of the **Snapshot** panel opens the following display:



Horizontal rows show the different sections of the console and the vertical rows show the Recall and Auto Update status for each of the different types of control. A red X indicates not included and a green tick indicates included. These settings can be changed individually by touching the X or tick symbols or by touching the name of a row or column to change all of its contents.

Recall Scope is dealt with in the next section but the **Auto scope** columns determine which controls will be included in the automatic group update. Any elements that have a red X will not be updated in any snapshots when **Update Group** is pressed.

In the picture above the Input Devices (rack and local input sockets) are not included in the Auto scope so none of their gains or phantom power can be updated using the **Update Group** function. All other elements are ticked and therefore can be included in the **Update Group** function.

> ***Note - If elements are included in the Global Auto Scope they can still be prevented from Group Updating by the individual Snapshot's Group and Auto Update Scope.***

Selecting a Snapshot in the list and pressing the **Group & Auto Update Scope** button opens the following panel:

This is similar to the **Global Scope** panel but represents the Group and Auto Update Scope for one individual snapshot which is indicated by its name and number at the top of the panel.

The down arrows on the left of the panel can be clicked to expand the list to show and edit the status of individual sockets and channels for each Snapshot.

Changes in Control Group membership and ganging can also be included or excluded using the tick boxes at the base of the panel.

In the picture above the Audio Enhancer input trim has been excluded from the Group Update in this particular Snapshot.

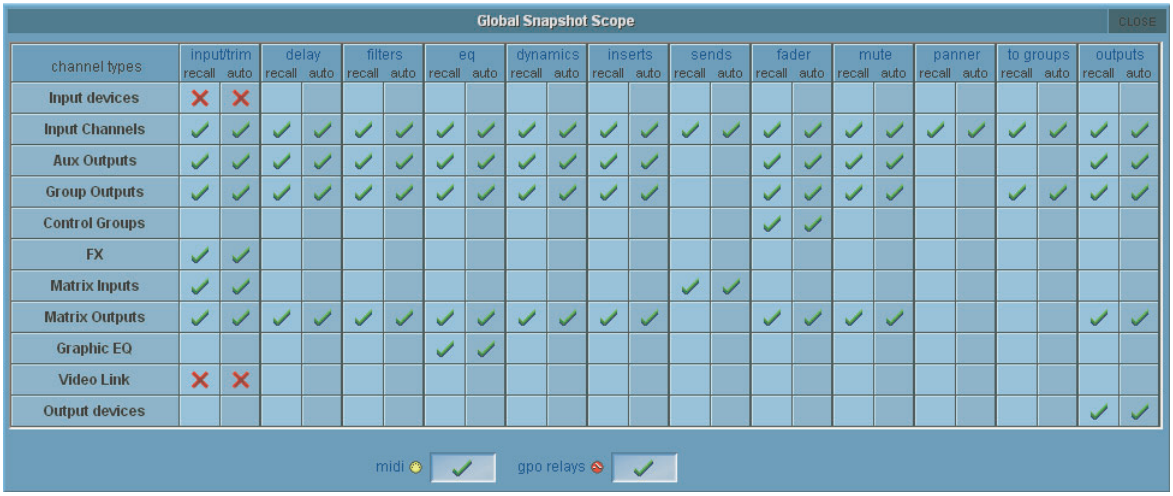
> ***Note - When using Snapshot Groups it is advisable to set the Global Auto Update scope before attempting to change the update settings for each individual Snapshot. Use of the Global Scope alone probably offers quite sufficient control for most common applications.***

3.4.11 Global Recall Scope

When a snapshot is stored all the console settings are saved but when the snapshot is recalled its effect can be limited to certain channels and controllers.

> ***Note - All elements of console channels and several other features such as Graphic EQ and Effects have their own SAFE settings. If any of these SAFE settings are active then the relevant controls cannot be affected by any Snapshots. This is in addition to the Global Scope settings described here.***

Pressing the **Global Scope** button expands the panel to display and edit the scope for all snapshots.



Horizontal rows show the different sections of the console and the vertical rows show the Recall and Auto Update status for each of the different types of control. A red X indicates not included and a green tick indicates included. These settings can be changed individually by touching the X or tick symbols or by touching the name of a row or column to change all of its contents.

The **Recall scope** columns determine which controls will be included in the Snapshot recall. Any elements that have a red X will not be recalled in any snapshots.

In the picture above the Input Devices (rack and local input sockets) are not included in the Recall scope so none of their gains or phantom power can be changed by firing Snapshots. All other elements are ticked and therefore can potentially be changed when a Snapshot is fired.

Note - If elements are included in the Global Recall Scope they can still be prevented from recall by the individual Snapshot's Recall Scope.

3.4.12 Individual Snapshot Recall Scope .....

Selecting a Snapshot in the list and pressing the **Recall Scope** button opens the following panel:

The controls that are included in each of the Recall Scope columns can be seen at the bottom of the panel when any of the entries are changed and are as follows:

Controllers

Input/Trim (Local I/O and Racks) - analogue gains, switches and phantom power
Input/Trim (Input Channels) - input routes, digital trim, phase, channel name and tubes
Input/Trim (Aux Outputs/Group Outputs/Matrix Outputs) - digital trim, phase, delays, buss name and tubes
Input/Trim (Matrix Inputs) - input routes, matrix input name and tubes.
Delay (All channel types) - Channel delay
Filters (All channel types) - HPF and LPF
EQ (All channel types) - all controllers except channel HPF and LPF.
Dynamics (All channel types) - all controllers except stereo link.
Inserts (All channel types) - Insert Send & Return routes and ON/OFF switch
Sends (Input Channels) - Aux send levels, ON/OFF & PRE/POST switches and Aux pans
Sends (Matrix Inputs) - Matrix send levels and switches
Fader (All channel types) - channel fader.
Mute (All channel types) - channel mute
Panner (Input Channels) - channel pan
To Groups (Input Channels) - Input Channel to Buss routing switches
To Groups (Group Channels) - Group to Group routing switches
Outputs (Input Channels) - Direct output routes, direct gains and ON/OFF switches
Outputs (Aux Outputs/Group Outputs/Matrix Outputs) - Output routes and gains
Outputs (Local I/O and Racks) - analogue output 10dB pads and AES SRC switches.

Misc

Control Group Members - Control Group label and a complete list of each group's members.
Gangs - Channel gang members.
Banks - Current assignment for all controllers and selected bank on the worksurface.
Note that if Waves is active, a Waves scope button is also shown.

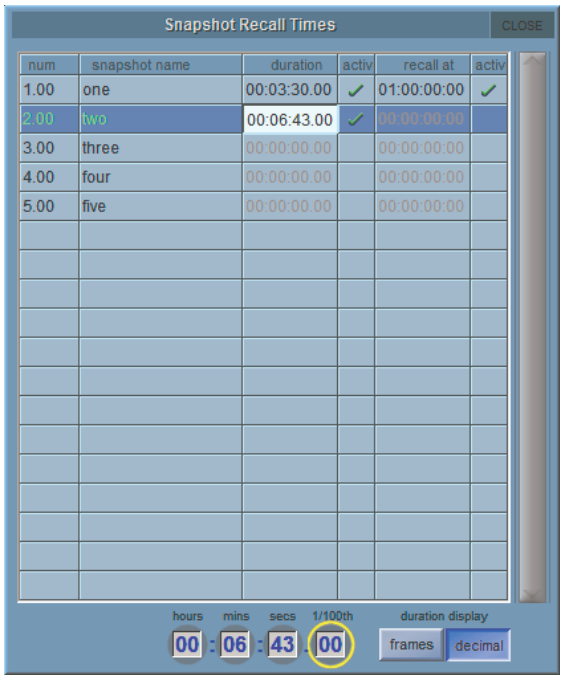
The down arrows on the left of the panel can be clicked to expand the list to show and edit the status of individual sockets and channels for each Snapshot.

3.4.13 Snapshot Recall Times

In additional to being fired manually, snapshots can be timed to fire automatically in sequence. This is done in the **Snapshot Recall Times** panel, opened by pressing the **scope>recall times** button on the left hand side of the **Snapshots** panel.

Each snapshot can be given a **recall at** time (the timecode value at which the snapshot will fire) and a **duration** (the time lapse before moving onto the following snapshot). Both the **duration** and **recall times** must be activated by ensuring that their **Active** column is ticked. The smallest time units can be switched between 1/100ths of a second and frames using the **duration display** buttons in the bottom right-hand corner of the panel.

The first snapshot can be fired manually in the main **Snapshot** window, if no specific **recall at** time is set. When this snapshot is fired, the next snapshot in the list will automatically be fired after the set time has elapsed and a progress bar in the snapshot's entry in the **Snapshots** panel will show the time remaining until the snapshot is fired. Pressing the **duration active** button while the progress bar is moving will halt the process. The **recall at** time overrides any active **duration** time.



3.4.14 Snapshot Crossfades

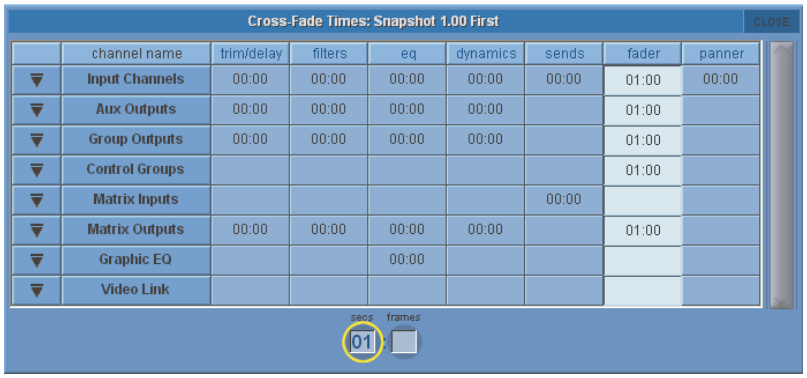
A crossfade time which is measured in seconds and frames can be applied to different controls in a Snapshot by adjusting the Crossfade Time in the Cross Fades panel. This crossfade occurs as you go into the Snapshot.

Select an individual time by touching it or select a column or row by touching its heading. Then enter a time in the Secs/Frames boxes at the bottom of the panel. Either touch and type or use the Touch Turn rotary to enter a figure.

Different Crossfade times can be applied to input trims, filters, EQs, dynamics, sends, faders and pans.

The down arrows on the left of the panel can be clicked to expand the list to show and edit the status of individual channels for each Snapshot so different Crossfade times can be applied to different channels as well.

A value of zero switches it off.



3.4.15 Snapshots and MIDI .....

There are two separate areas of MIDI control:

1) A snapshot can have a MIDI Message attached to it, and will output that MIDI when fired. The MIDI message must be created in either the **Scope>MIDI Program** panel or the **Scope>MIDI List** panel.

2) The firing of snapshots can be controlled by incoming MIDI messages on channel 16, and can cause these same messages to be output in addition to any MIDI List data contained in the snapshot.

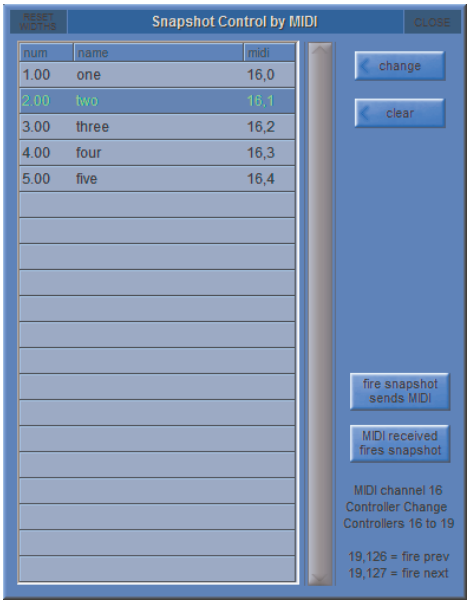
The specific MIDI messages that are being responded to can be edited in the **Snapshot Control By MIDI** panel, accessed via the **Control By MIDI** button.

To change the default message for any particular snapshot, select the snapshot and press the **Change** button to select a specific available controller number. The **Clear** button will remove the existing message completely.

The **MIDI Received Fires Snapshots** button allows the Snapshot system to respond by default to the following incoming MIDI messages:

General Purpose Controller 16; Values 1 to 127 will fire snapshots 1 to 127
General Purpose Controller 17; Values 0 to 127 will fire snapshots 128 to 255
General Purpose Controller 18; Values 0 to 127 will fire snapshots 256 to 383.
General Purpose Controller 19; Values 0 to 125 will fire snapshots 384 to 509.
General Purpose Controller 19; Value 126 will fire the previous snapshot in list.
General Purpose Controller 19; Value 127 will fire the next snapshot in list.

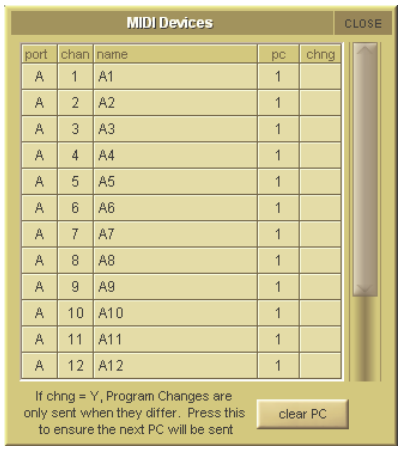
When active, the **Fire Snapshot Sends MIDI** button causes the above messages 1 to 509 (or customised versions - see below) to be sent whenever a snapshot button is pressed. **Previous** and **Next** buttons do not output MIDI messages of their own.



3.4.16 MIDI Devices .....

If you intend to send MIDI to external devices it is advisable to first define your receiving devices - this will make the programming of MIDI messages in Snapshots easier to achieve.

Press either the **Scope>MIDI Program** or the **Scope>MIDI List** button and then press the **Devices** button - the following panel will open:


MIDI Devices
CLOSE
port chan name pc chng
A 1 A1 1
A 2 A2 1
A 3 A3 1
A 4 A4 1
A 5 A5 1
A 6 A6 1
A 7 A7 1
A 8 A8 1
A 9 A9 1
A 10 A10 1
A 11 A11 1
A 12 A12 1
If chng = Y, Program Changes are only sent when they differ. Press this to ensure the next PC will be sent
clear PC

The SD5's built in MIDI port is referred to as Port A in the **Port** column. Set the receiving MIDI **chan**nel and **name** for each of your receiving devices and set 1 or 0 in the **PC** column according to whether the device uses 0-127 (0) or 1-128 (1) for its data values. If you don't know this piece of information then leave the setting as 1.

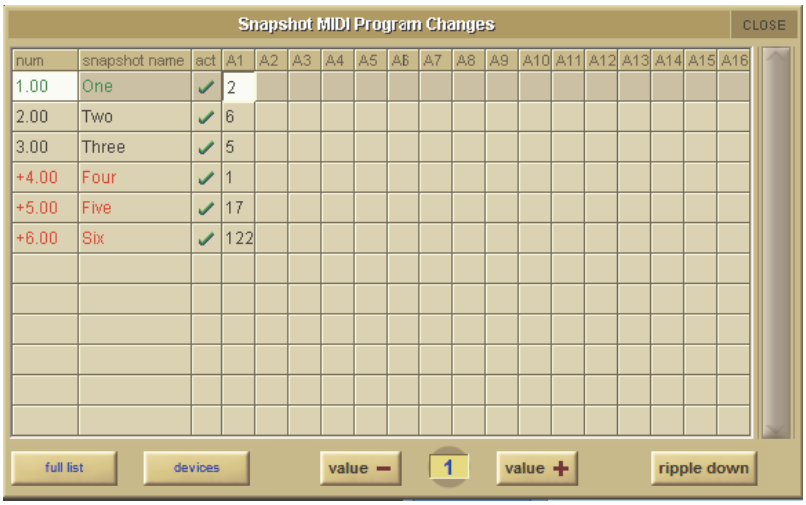
The column marked **Chng** determines whether Program Changes are only sent when they are different to the last sent message (Y) or whether they are always sent irrespective of the last message sent. This would be useful if there was no need to change the program on the receiving device and if you did this it might interrupt the signal passing through the receiving device as its program changes.

The **Clear PC** button at the bottom of the panel ensures that the next message will be sent.

This has defined your devices for later use and the panel can now be closed.

3.4.17 MIDI Program and MIDI List .....

The **Snapshot MIDI Program Changes** panel, accessed via the **midi program** button has a column for each of the 16 MIDI channels on Port A and a row for each existing Snapshot. Touch and type, use the value up/down buttons or enter a value using the **Touch Turn** rotary control for each program change that you wish to send with each snapshot and ensure that the **act** (active) box is ticked for each relevant Snapshot. With the **ripple down** button active, entries will be copied to all consecutive following Snapshots that have the same value as the one which was changed or have no value. Once entered, this MIDI information will be sent when the Snapshot is fired.



If MIDI program change messages have been entered in this way they will also appear in the **Scope>MIDI List** panel which allows entry and editing of other types of MIDI message.

There are columns for the **midi device** name (mentioned in the last section), the MIDI **Port**, MIDI **Channel**, type of **command** and two **data values.**

Note - If you have already defined MIDI Devices, selecting one of these in the MIDI Device column will automatically enter the Port and MIDI channel that you have previously entered for that device.

If you want to send multiple MIDI messages with a single Snapshot, use the **Insert** button to add extra lines for message entry. You can then configure the message by selecting each column in turn, and using the **value** controls to the right of the list. Below the **value** controls is a key for the **command** column.

To test the MIDI message without firing the Snapshot, press the **Send** button - the display at the bottom right of the panel shows the presence of incoming and outgoing MIDI messages.

MIDI messages can also be automatically entered into the list by generating the required message from the external MIDI device, sending this to the console's MIDI In and pressing the **Capture** button.

3.4.18 Surface Offline & Snapshot Editing .....

In the Snapshot section of the console worksurface there are 2 buttons labelled **Surface Offline** and **RTN To Audio.**

When pressed and held, the Surface Offline button stops the communication between the worksurface controls and the audio engine - this means that anything that is done on the surface of the console will have no effect on the audio passing through the console.

Pressing the RTN To Audio button will reconnect the surface controls to the audio engine ignoring any worksurface changes that have been made since the surface was put Offline and returning the console to its state before the Surface was put Offline.

> ***Important Note - if the Surface Offline button is pressed, worksurface changes are made and the Surface Offline button is pressed a second time, the changes that have been made on the worksurface will immediately applied to the current audio - be careful with this function...!***

The main purpose of the Surface Offline and RTN To Audio buttons is to enable Snapshots to be edited with the worksurface offline so that any Snapshot can be previewed, adjusted and updated without affecting the current audio.

While Surface Offline is active any of the Snapshot functions already described can be used.

As an example, if you are currently in Snapshot number one and wish to check or edit Snapshot number two you should:

1) Press and hold the Surface Offline button and the audio will continue normally.
2) Scroll down and fire Snapshot two to see its settings on the worksurface.
3) Edit the settings for Snapshot two and Update either Current or Selected according to requirements.
4) Press the RTN to Audio button to automatically put the surface back online and back in Snapshot one.

3.4.19 Auto Update .....

The Auto Update button in the Snapshots panel activates automatic updating of the current Snapshot whenever a control is adjusted. The current Snapshot will be updated without using the Update Current, Selected or Group functions. The elements of the Snapshot that are automatically updated is dictated by the Group and Auto Update Scope settings that are described in the Group Snapshots section of this chapter.

> ***Note - In view of the potential for changing Snapshots without active manual intervention, it is probably advisable to leave this function OFF unless you are absolutely certain that you require it.***

3.4.20 Snapshots & MTC .....

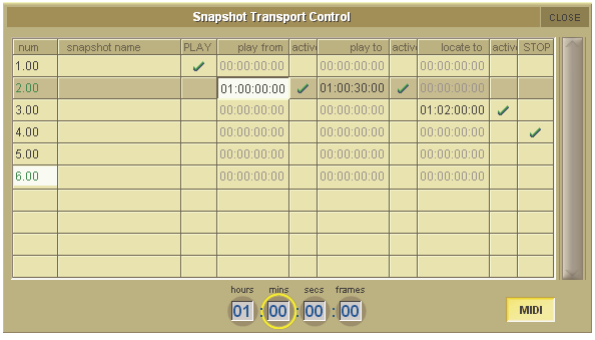
Snapshots can also be programmed to send MMC messages, allowing control of external playback devices. Within the snapshot **scope** section, press the **transport control** button. This opens the **Snapshot Transport Control** panel. The panel lists all current session snapshots and allows entry, per snapshot, of the following MMC commands.

PLAY:	Basic Play command. External device will play from current location
play from:	External device will play from specified time value
play to:	External device will stop when the specified time is reached.
locate to:	External device will Locate to specified time.
STOP:	Basic Stop command. External device will stop.

Commands can be sent via MIDI, selected at the bottom of this panel.

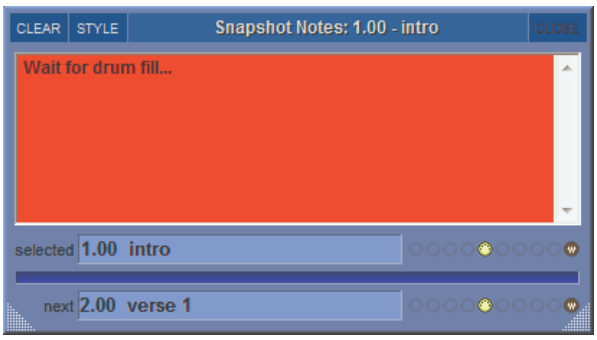
> ***NOTE : Correct MMC operation relies on a correctly configured MIDI system, with MTC from the external device connected to the console MIDI Input. If this MTC connection is not present, the MMC snapshot system will not work.***

A Transport Control panel is also provided in the Layout Menu. This provides a MTC readout of incoming MTC, and allows direct control of the external device.



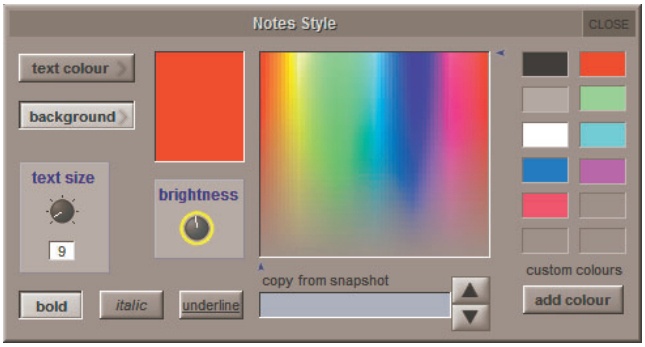
3.4.21 Snapshots Note .....

Pressing the notes button (towards the top left-hand corner of the main Snapshots panel) opens a notes panel, displaying any notes associated with the current Snapshot. This panel stays open whenever the notes button is active, switching to the next Snapshot when it is fired. The **selected** and **next** snapshots are shown below the text box.



To add notes, simply touch inside the notes space in the centre of the window and type your notes. To clear the text, touch the **clear** button in the top left-hand corner of the panel.

To format the text or background, touch the **style** button (next to the **clear** button) to open the **Notes Style** panel:



The text can be formatted using the **text size** controller and **bold**, **italic** and **underline** buttons in the left side of the panel. To change the colour of the text or background, select either the **text colour** or **background** button in the left side of the panel, touch inside the colour palette in the centre of the panel, and adjust the brightness using the **brightness** controller. The selected colour is displayed above the **brightness** controller.

Note that text defaults to minimum brightness (black), and the background to maximum (white). You may therefore need to move the brightness controller towards the middle in order to see the colour content.

You can save your selected colour as one of the twelve **custom colours** in the right of the panel. To do this, simply select the **add colour** button and touch inside the desired custom colour box.

You can also copy styles from other snapshots using the **copy from snapshot** controls beneath the main colour palette. Use the up and down arrows to move through the snapshot list – the snapshot whose style is currently displayed is shown in the **copy from snapshot** text box.

Note that copying a style from another snapshot will overwrite the current style.

3.5 Options

The **Options** menu includes a variety of SD5 system preferences, grouped into eight tabs. Most functions are described fully within the display. Each function's button displays **Yes** in purple to indicate that it is active, and **No** in grey to indicate that it is inactive.

Note that if Waves is enabled, the** Options **menu is located in the** Setup **drop-down menu. See the appendices for more details.

3.5.1 Surface .....

The **Surface** tab includes settings related to the console screen, buttons and encoders:

Touch Keyboard

This option defines whether or not the on-screen keyboard appears when a name box is touched. It is active by default.

Large LCD Names

This option allows the names in the LCD displays to be displayed in a larger font, either with the gain value and solo buss (**with dBs**) or as the channel only (**name only**). It is inactive by default.

Round to whole dBs

Fractional dB values are rounded to the nearest integer value.

Auto Expand EQ

This option defines whether or not the EQ display opens when an EQ is adjusted. It is active by default.

Auto Expand Dynamics

This option defines whether or not the dynamics display opens when an dynamics is adjusted. It is active by default.

Auto Expand Time

This pot, located to the right of the **Auto Expand EQ** and **Dynamics** options, defines how long the EQ and dynamics displays remain open after the parameters within them are adjusted. The current setting is displayed in seconds, below the pot. Touching the pot assigns it to the Touch-Turn encoder.

Display Snapshots Overview

This option allows a floating copy of the Snapshots list to be displayed in the Master screen, for the viewing or triggering of Snapshots.

Global 2nd Functions

This option defines whether the 2nd function button affects just the current surface (**no**) or all surfaces on the console (**yes**).

Auto-cancel 2nd Function

This option defines whether or not active **2nd Function** buttons are cancelled after the time defined in the **auto-cancel time** pot to its right. It is inactive by default. Touching the pot assigns it to the Touch-Turn encoder.

Note that both the** auto-expand time **and** auto-cancel time **values are set on the console and are not saved as part of the session file.

3.5.2 Faders .....

Fader Assigns Channel

This option allows a channel to be assigned to the worksurface channel controls whenever its fader is touched. It is inactive by default.

Note that when this option is active, accidentally touching a fader will assign it to the worksurface controls.

Fader 0dB Detent

This option defines which controls have a detent at 0dB. Options are **Inputs, Outputs**, **Graphic EQ** (default) and **CGs**.

Fader Touch Control

This option defines whether or not a fader moves when it doesn't detect a touch. Options are **Free** (fader moves freely) and **Protected** (fader is protected from moving without touch).

Note that this setting is set on the console and is not saved as part of the session file.

CG Faders control Aux Sends

If this option is set to **Yes**, whenever 'Aux to Faders' is activated (by any means), the Control Group faders jump to the middle and become +/-18dB trims for the selected aux send, on all channels which are members of the Group. The fader for Control Groups which have no members will simply close and do nothing. CG Mutes and Solos continue to operate as normal.

Set Spill Direction

This option defines the way in which Sets are spilled onto the worksurface: **L Vert** places them on the left side, creating as many banks as are required to spill all the channels in the Set; **R Vert** does the same on the right side; **Horiz** places the first 24 channels across both sides of the console before creating as many banks across both sides as are required to spill all the channels.

3.5.3 Solo .....

The **Solo** tab includes settings related to the console's solo functions:

Solo Displays Insert

This option defines whether or not the display of any internal FX or Graphic EQ inserted on a channel is opened when that channel's solo button is pressed. The Graphic EQ panel can only be displayed on the Master screen. It is active by default.

Solo Assigns Aux to Faders

This option defines whether or not the send levels to an aux channel are assigned to the channel faders when that aux channel's solo button is pressed. It is inactive by default.

Solo Assigns Aux to Rotaries

This option defines whether or not the send levels to an aux channel are assigned to the top row of aux encoders when that aux channel's solo button is pressed. It is inactive by default.

Solo Assigns Channel

This option defines whether or not a channel is automatically assigned to the channel worksurface controls when that channel's solo button is pressed. It is inactive by default.

Solo Reverts to Output

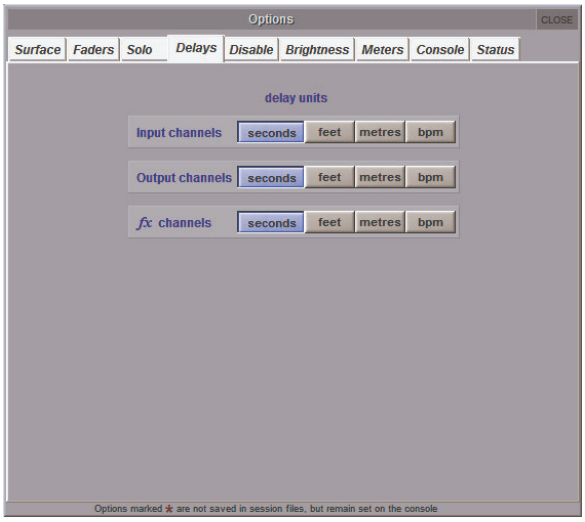
This option defines what happens if an output channel solo is active when an input channel solo is then activated and deactivated. When this option is active, deactivating the input channel solo will return the solo buss to the output previously in solo mode. When this function is inactive, deactivating the input channel solo will leave all solos inactive.

The option is only available if the solo buss is in **single** mode. The option is inactive by default.

3.5.4 Delays

This tab is used for defining the delay units used in the Setup panel of **Input channels**, **Output channels** and **fx channels** (fx units). The options are **seconds** (default), **feet**, **metres** and **bpm**.

Note that these options are also displayed to the right of the numeric keypad opened by pressing the delay's keypad symbol.

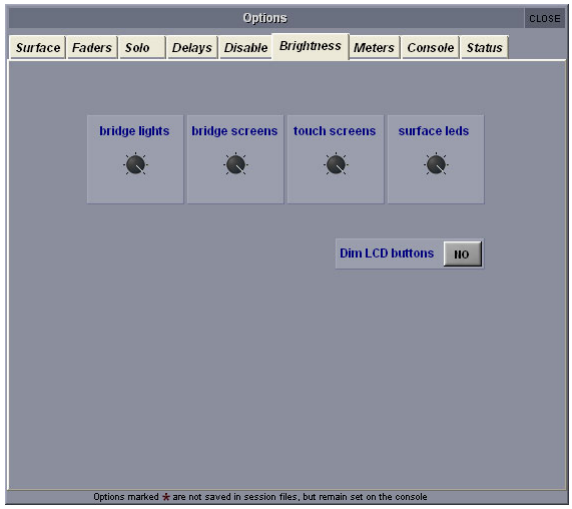


3.5.5 Disable

This tab is used for disabling worksurface buttons, in order to prevent accidental changes if they are not being used. This function does not affect on-screen operation of the functions:

3.5.6 Brightness

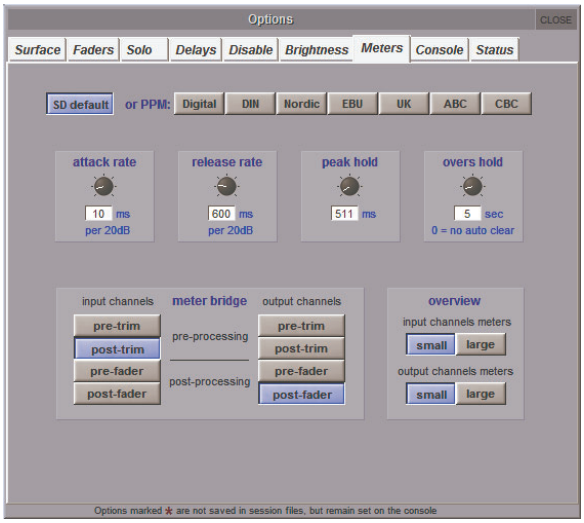
The **Brightness** tab is used for setting the brightness of the console's **bridge lights**, **bridge screens**, **touch screens** and **surface leds**. Touching each pot assigns it to the Touch-Turn encoder.



The console's LCD buttons are not controlled by the **surface leds** pot but by the **Dim LCD buttons** option towards the bottom of the screen. Note that the dimming option only dims the brighter LCD colours.

3.5.7 Meters

The **Meters** tab includes settings related to the console meters:



The four pots across the middle of the panel affect the attack and release reaction time (**attack rate** and **release rate**), the **peak hold** time and the **overs hold** time. The current setting for each is displayed in either milliseconds or seconds, below each pot. Touching each pot assigns it to the Touch-Turn encoder. The row of buttons above the pots provide access to a number of preset meter configurations, including the **SD default** and a number of PPM formats.

> ***Note that when the** overs hold **time is set to 0, the hold time is set to infinite, not 0. The overs lights will therefore remain lit until they are manually cleared.***
>
> ***Note also that if you activate a metering preset and then edit it, the button for the preset on which the setting are based will still appear selected.***

The point being metered within the channel is set using the eight buttons in bottom left of the display. The input channel meters are adjusted using the buttons on the left, and the output channels are adjusted on the right. The options for each are **pre-trim**, **post-trim** (**pre-processing**), **pre-fader** (**post-processing**) and **post fader**. The default setting is **post-trim** for input channels, and **post-fader** for output channels. The currently selected button is displayed in purple.

The **Overview** area in the bottom right of the display allows the size of Input and Output Meters to be set: **small** or **large**.

> ***Note that the settings in the bottom half of the display affect the meters on the worksurface, not the on-screen meters.***

3.5.8 Console .....

The **Console** tab includes settings related to the console's startup procedure:

Load Startup Session

This option allows the startup session to be automatically loaded on system start up. When not selected, the desk will always start up in the default state.

Save Startup Session

This option allows the startup session to be automatically saved when quitting. When not selected, the desk will always start up in the same state.

Auto-Save Recovery Session

This option enables an auto-save function, which saves the active .ses file regularly, in case it needs to be recovered. The time between auto-saves is defined using the **save every** pot to the right of the option's button.

Default Positions

This option allows all windows to be set to their default positions on next launch.

Enable Waves MultiRack

This option enables Waves features. Waves is an optional extra which provides a set of Waves plug-ins in addition to the console's own fx units.

Note: This option should not be enabled unless the console has Waves hardware and software installed.

See the relevant appendix for more details, or contact DiGiCo if you are interested in purchasing Waves.

Enable Optocore

This is a new option allowing optocore connections to be switched off if not in use. You can have both optocore loops **OFF**, or you can enable **Loop 1**, **Loop 2** or **Both (according to console model and whether Optocore is fitted)**.

NOTE: In most circumstances, if Optocore is fitted to the console, only Loop 1 will be present therefore press the LOOP 1 button.

Loop 2 and Both buttons are currently disabled.

If this setting is changed, a console power cycle is required.

Enable Console Network

This option activates networking for remote control PCs and consoles and is explained in the **Network and Mirroring** chapter.

Note that** Enable Waves MultiRack **and** Enable Console Network **both require a restart for changes to take effect.

Mirroring Mode

This option defines the way control is assigned between networked consoles and is explained in the **Network and Mirroring** chapter.

3.5.9 Status .....

The **Status** tab defines whether console status notifications are displayed. All functions are active by default.

Display System Status Indicators

This option defines whether or not the Status display is open. This display provides constant monitoring of various elements of the console's systems. The indication box to the right of each element displays a green **OK** when that element is running correctly, a red error when that element is malfunctioning, and a blank grey box when that element is not relevant. Touching any indication box will bring up the appropriate Diagnostics page, if there is one.

Display System Alerts

This option defines whether or not system warnings are displayed. The time for which alerts are displayed is adjusted via the message display time pot, located towards the bottom of the window. The current setting is displayed in seconds, below the pot. Touching the pot assigns it to the Touch-Turn encoder.

Display Overs Alerts

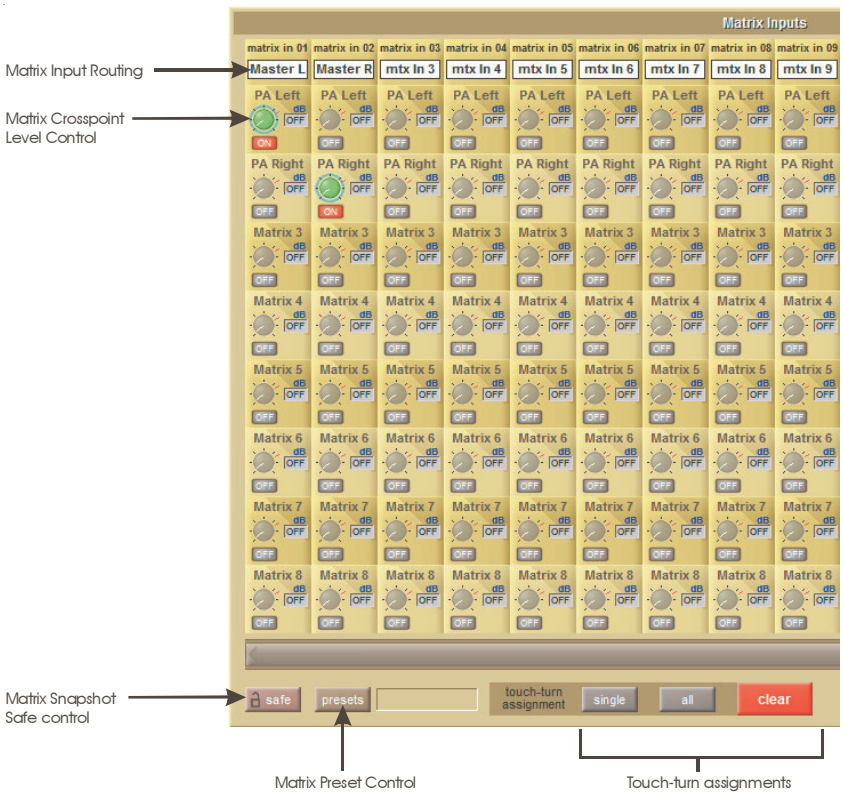
With this option active, whenever an input or output over-indicator comes on, the **Signal Overs** panel is displayed showing details of the signals involved and their channels. Touching an entry in the Signal Overs list brings the channel to the surface to be adjusted. The **Signal Overs** panel also duplicates the **Clear Over Indicators** button.

Note that the Signal Overs panel can also be opened using the Signal Over Indicators option in the System menu.

3.6 Matrix Menu

3.6.1 The Matrix Panel .....

Touching the **Matrix** menu opens the **Matrix Inputs** panel, which allows matrix inputs to be selected and the level of each input to each output to be set. Each column of the display represents an input to the matrix, and each row represents an output. Each pot within the display trims the signal coming from the input for that column, going to the output for that row.



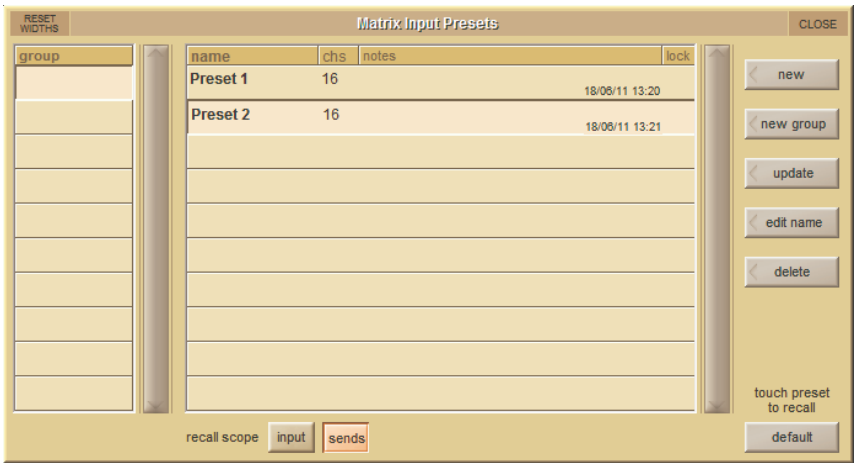
The top of each input column displays the input's name, and the label above each trim pot displays the pot's output. Touching any trim pot assigns it to the **Touch-Turn** encoder; pots lighten and are ringed green to indicate that they have been assigned. Multiple pots can be assigned simultaneously, in which case the encoder alters all assigned pots by the same amount, regardless of each pot's position. The value of each pot is displayed in dB to its right. Sends are switched on using the Touch Turn control's button; the display shows **OFF** in grey when it is off, and **ON** in red when switched on. Turning a pot automatically switches it on.
There are three **touch-turn assignment** buttons at the bottom of the display. The **all** button assigns all the trim pots to the **Touch-Turn** encoder; individual pots can then be deselected by touching them. The **clear** button clears all the pots from the touch-turn encoder. Activating the **single** button prevents multiple trim pots from being assigned to the encoder simultaneously.

Note that the** all **function can still be triggered when the** single **function is active.

Matrix input signals are selected in the **Setup** display, accessed by touching the text box at the top of each matrix input column. At the top of the **Setup** display, there is a text box which can be used for renaming the matrix input. Below that, there is a matrix input routing button which opens up a routing display. Routing displays are described in the Getting Started Section of this manual.

Below the routing button, there is a scrollable list of buttons displaying the names of all the other matrix inputs, under the heading **copy settings from**, used to copy matrix settings between input columns. To copy the level and on/off status of each send from one column to another, simply touch the button for the input column from which you want to copy settings.

The **Matrix Input Presets** panel is opened using the **presets** button located at the bottom of a matrix input **Setup** display and also at the bottom of the **Matrix** panel. Preset panels are described in full in the Getting Started section of the manual. To include input routes in the preset recall, make sure the **input** button at the base of the screen is active. To include trim pot levels and on/off buttons, make sure the **sends** button at the base of the screen is active. The **chs** column of the display indicates the number of channels included in the preset, and presets can be named – by default, Presets are named after input signal 1.



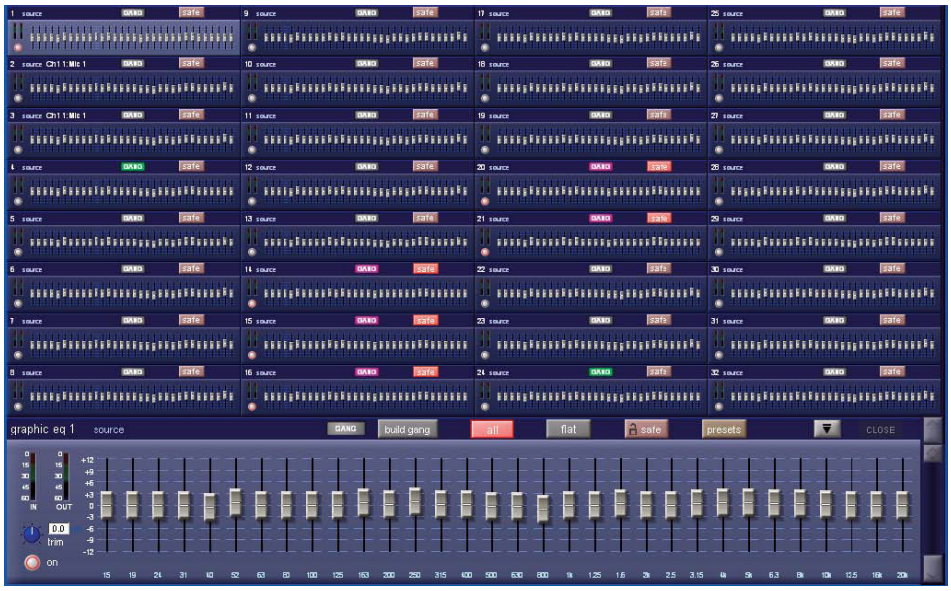
The **safe** button at the bottom of the **Matrix** panel protects the matrix settings from being overwritten by a snapshot recall.

3.7 Graphic EQs Menu

3.7.1 Graphic EQ Panel .....

Touching the **Graphic EQs** menu opens a display of the SD5's graphic EQs. This display allows all 32 of the SD5's 32-band graphic EQ's to be configured. Graphic EQ's can be assigned to the inserts and outputs of all four channel types, and can also feed the input of an input channel. Graphic EQ routing is done via the channel routing pages, and is not accessible from the master **Graphic EQs** display.

The display consists of miniature representations of all 32 graphic EQ's, one of which is also shown expanded in the bottom of the display:



The settings on each graphic EQ are accessed via the expanded display, though some settings can also be adjusted in the miniature display. Touch any of the graphic EQs to assign it to the expanded display. The EQ assigned to the expanded display can also be scrolled using the scroll bar to the right of the expanded display. The EQ currently assigned to the expanded display is indicated in the top left-hand corner of the expanded display, along with indication of the EQ's **source**. The miniature display can be opened and closed by pressing the expand button (a down-arrow when opened, and an up-arrow when closed) to the left of the expanded EQ **close** button.

The left-hand side of the expanded display includes metering of the EQ's **IN** and **OUT** signals, a **±**18dB gain **trim** pot with value indication to its right, and an **on** button which is ringed red to indicate that the EQ is on. Touch the **trim** pot to assign it to the Touch-Turn encoder. To the right of these controls, the 32 EQ band faders are displayed. The label located beneath each fader indicates the frequency of each band in Hertz, and the gain scale associated with each line on the display is indicated to the left of the lowest band. Each band can also be altered within the miniature display.

3.7.2 Ganging Graphic EQs .....

The grey **GANG** and **build gang** buttons above the band faders are used for ganging together different graphic EQ's. When EQs are ganged, their band faders, **on** buttons and trim pots are locked together.

> ***Note that ganging of faders is relative: EQs can have different shapes when they are ganged, and each EQ will move by the same amount when a band is adjusted.***

> ***Note that if faders are moved within the miniature display, any other EQs ganged to them will also move.***

When a set of Graphic EQs are inserted on a stereo or surround channel, those EQ units are automatically ganged together, and are then automatically unganged when the insert route is removed.

> ***Note that it is the Insert Return routing, not the Insert Send routing, which gangs EQ units.***

To start building a gang manually, touch one of the graphic EQs to be included in the gang to assign it to the expanded display, and touch **build gang**. The button turns red to indicate that it is active. The **GANG** button to its left will also become coloured, indicating that it is included in the gang being built. To add further EQs to the gang, touch the relevant small Graphic EQ display on the other Graphic EQs to be included, and they will change colour to match the expanded EQ's **GANG** button. To deselect any EQs from the gang, touch their **GANG** buttons again and they will return to grey. Touch the **build gang** button to complete the ganging process. EQ gang assignments can be adjusted by reselecting the **build gang** button.

> ***Note - To temporarily isolate a Graphic EQ band from a gang, press and hold the mute button above the band's fader and then make the adjustment to that fader - this move will only be made to that band on the Graphic EQ that you are currently adjusting.***

3.7.3 Graphic EQ ALL Button .....

To adjust all 32 graphic EQs at once, select the **all** button to the right of the **build gang** button. It turns red to indicate that it is active. Adjusting any band in the expanded EQ will cause that band in all 32 EQs to jump to that position.

> ***Note that the** all **function is absolute: Once a band is altered, any variations on that band between the EQs is eliminated.***

> ***Note also that the** all **function does not affect the normal operation of faders in the miniature display - they still operate independently.***

To return all 32 bands within one EQ to 0dB, touch the **flat** button to the right of the **all** button, and touch **Yes** in the confirmation pop-up which appears.

> ***Note that the** flat **function affects any EQs which are ganged to the expanded EQ.***

Activating the **safe** button, to the right of the **flat** button, protects the graphic EQ settings from being overwritten by a snapshot recall.

3.7.4 Graphic EQ Presets .....

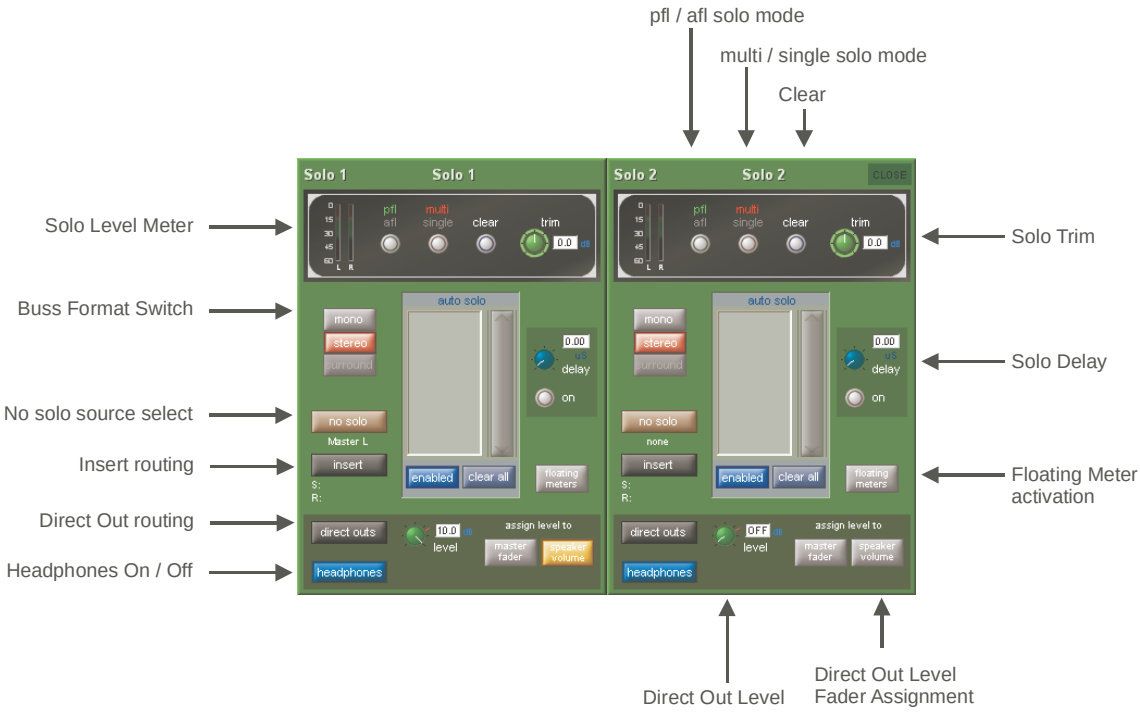
Touching the **preset** button, to the right of the **safe** button, opens the **Graphic EQ Presets** display in which current settings can be saved and pre-created settings imported.

The positions of the **trim** pot, **on** button and all 32 faders are included in an EQ preset. To reset the channel to the default settings, press **default**.

3.8 Solos Menu

3.8.1 The Solo Panel .....

Touching the **Solos** menu opens the **Solo 1** and **Solo 2** displays. These displays are used for configuring the console's solo busses. Solo buss 1 is configured in the left-hand display, and solo buss 2 in the right. Both displays function in exactly the same way:



> ***Note that the in-channel solo functions are described in the Channel Types Chapter***

At the top of each display is a black box containing the solo meter(s), three radio buttons, and an input trim pot. These controls are duplicated on the console worksurface in the centre section

The first button selects which point in the channel feeds the buss, and toggles between PFL and AFL, as indicated by the **pfl** or **afl** labelling above the button turning green. The button is also ringed green on the worksurface when **afl** is selected.

The second button toggles the two solo button modes: **multi** in which multiple channels can feed the solo buss at once, or **single** in which only one channel can feed the buss. In **single** mode, when a channel is feeding the solo buss, pressing the solo button on a different channel will cause the originally selected channel to be deselected from the solo buss. The solo button mode is indicated by the **multi** or **single** labelling above the button turning red. The button is also ringed red on the worksurface when **single** is selected.

All feeds to the solo buss can also be cleared by pressing the **clear** button. When there is a feed to that solo buss somewhere on the console, the button is ringed blue on the worksurface.

The level of the solo buss can be adjusted using the trim encoder on the worksurface. The on-screen **trim** pot is always assigned to this worksurface encoder, as indicated by the presence of green ring around it. The signal can be trimmed by **±**18dB, and the trim value is indicated to the right of the on-screen **trim** pot.

In the centre of the **Solo 1** or **Solo 2** display, there is an **auto solo** area which lists all the channels which are selected for the **auto solo** function. This function automatically routes selected channels to that solo bus whenever another channel is soloed, and the selected channels can be scrolled if necessary using the scroll bar on the right of the list. The **auto solo** channels are selected in the Channel Setup display. This **auto solo** function is enabled and disabled by touching the left-hand blue button below the **auto solo** list. The button label displays whether the **auto solo** function is **enabled** or **disabled**. The channels in the **auto solo** list can all be removed by touching the clear all button below the **auto solo** list.

> ***Tip: If you are using effects returns, selecting auto solo will allow soloed tracks to be auditioned with their effects returns - this function only works in Multi-Solo mode.***

The solo buss signal can be delayed using the **delay** pot to the right of the **auto solo** area. Switch the delay on using the **on** button below the pot. Touch the pot to assign it to the Touch-Turn encoder. The delay value has a range of 0 to 2.7 seconds and is displayed above and to the right of the **delay** pot.

The **mono** and **stereo** buttons to the left of the **auto solo** area select whether the buss is mono or stereo. Each button is red when selected and grey when not selected. The selected format is also indicated by the number of meters displayed in the top-left corner of each display.

3.8.2 The No Solo Setup Display .....

Below the **mono** and **stereo** buttons is a button marked **no solo**. This button defines what signal (if any) is present on the buss when no channel solo is active. By default, there is no signal feeding the buss when no channel solo is active. Pressing this button opens the **No Solo Setup** display:

At the top of the display, there is a text box which can be used for renaming the solo buss. Touch the box or the keyboard symbol to its right, type the new name on the on-screen or external keyboard and press **OK**. The **Channel Name** display containing commonly used words for quick insertion can be accessed for buss naming by touching the down arrow immediately to the right of the text box. The solo buss name will then appear at the top of its master solo display, and in any solo-assigned master faders (See below for details).

Below the naming area, there are two columns of buttons used for selecting the audio source for the **no solo** function from among the group and aux channels. The left-hand column contains two pairs of buttons: the **groups** buttons (**mono** or **stereo**) and the **auxes** buttons (**mono** or **stereo**). Touching one of these buttons causes it to lighten to indicate that it is selected, and results in a list of those channels appearing in the right-hand column. A scroll bar appears in the right of the display if the channel list is too long for the window.

Touching one of these signal buttons assigns it to the **no solo** function, as indicated by the lightening of the signal's button and by the labelling immediately beneath the **no solo** button displaying the signal name. If a stereo signal is selected here, only the left-hand signal is displayed beneath the button. Signals can be deselected by touching them again. When no signal is selected for the **no solo** function, the labelling beneath the button displays **none**.

To close the **No Solo Setup** display, press the **CLOSE** button in the top right-hand corner.

The area below the **auto solo** area concerns the solo buss outputs. In the centre of the output area, there is an output level pot. Touch the pot to assign it to the Touch-Turn encoder. The buss output level trim ranges from **OFF** to +10dB, as indicated to the right of the pot.

3.8.3 Controlling Solo Buss Master Levels .....

The solo buss output level can also be assigned to either the master fader or speaker volume by pressing one of the four grey **assign level to..** buttons to the right of the **level** pot. Each button is highlighted in gold when it is selected. When a solo buss is assigned to the master fader, the master fader LCD button displays green, and the button lightens to indicate when any channels are assigned to the solo buss.

The top half of the LCD buttons displays the solo buss number along with any name given to it in the **No Solo Setup** display. When the fader is moved, the bottom half of the LCD button displays the fader level.

When a solo buss is assigned to the master fader, the fader's LCD button becomes a solo clear button, as indicated by **CLEAR** being displayed in the bottom half of the button when the fader is stationary.

3.8.4 Solo Outputs Routing .....

Each solo buss includes an insert send and return, and a direct output, both of which are routed in the **Solo Outputs** display. This display is accessed by touching the **insert** button below the **no solo** button, or the **direct outs** button in the top left of the solo buss output area.

This insert point only applies to the Solo buss Direct Output, not to the headphone signal.

At the top of the **Solo Outputs** display, the buss naming function described above is duplicated. Towards the bottom of the display, there are two buttons marked **output** and **insert A**. Selecting one of these buttons assigns that send (or send and return) to the signal routing area above it: When the insert is assigned, the **ins A send** routing button appears in the left-hand column, and the **ins A return** routing button in the right-hand column; When the output is assigned, the **outputs** routing button appears in the left-hand column and the right-hand column is left blank. Pressing any of these routing buttons opens a routing display. Insert and output routing can then be routed as described in the Getting Started section of this manual.

An extra button labelled **send+return** is included above the **ports** list in the **Insert Send Route** display button. When this button is activated, the send and return routing is linked for all signals within the **INTERNAL** port: If the **Graphic 1** input is assigned to the insert send, the **Graphic 1** output is automatically assigned to that insert return. Similarly, if it is the return which is manually assigned, the send automatically copies that send assignment. The **send+return** button is grey when inactive and brown when active.

Once the insert send and return signals have been selected, level trim pots appear in the bottom half of the **Solo Outputs** display. To the left of both pots there is a meter (or pair of meters, in the case of stereo channels) displaying the send or return level, and to the right of both pots there is a numeric display of the level trim in dB. Below the send level trim there is an **on** button which switches the send on and off. Below the return level trim there is a reverse phase button which inverts the phase of the returning signal. Both of these buttons become ringed in red to indicate that they are on.

Once any insert or direct out has been routed, the route is displayed below the button in the **Solo 1** or **Solo 2** display.

3.8.5 Headphone Outputs .....

Touching the **headphone** button in the bottom left-hand corner of the display sends the solo buss signal to the headphone sockets, located on either side of the console, under the arm rest. The button turns blue to indicate that it is active.

Both headphone outputs receive both solo buss signals, and the headphones will be silent when neither buss is routed to them, unless a **no solo** signal has been assigned.

The headphone level is controlled by the output **level** pot in the output area, and also by the headphone level encoder located in the centre section (shown below). The headphone signal can be muted by pressing the **mute** button next to the worksurface headphone level encoder, and the button is ringed red to indicate that the headphone send is muted.

3.8.6 Solo Meters .....

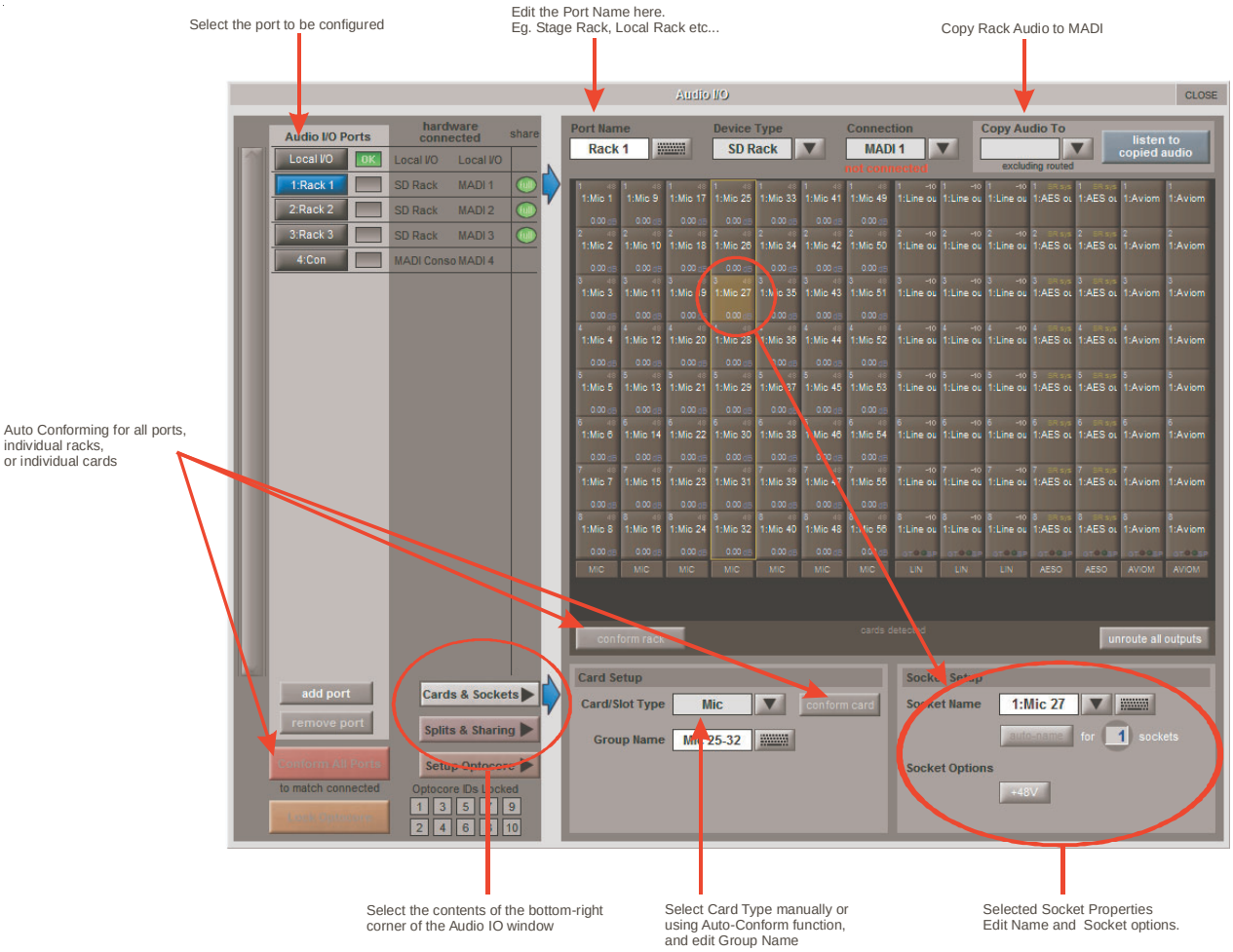
Solo meters can be displayed on the Master or Overview screen by pressing the **floating meters** button below the solo **delay** area in either side of the **Solo** panel.

Floating meters are described in the Channel List section of this chapter.

3.9 Setup Menu

3.9.1 Audio I/O .....

The **Audio I/O** display is used to configure the physical I/O connected to the SD5, including identifying and naming the sockets of the option cards installed in racks, and the setting of pads and phantom power.



3.9.2 Port Selection .....

The **ports** buttons in the top left-hand corner of the display select which port is being configured in the rest of the display. Each port relates to a set of physical audio connections:

Local I/O The three I/O cards installed in the rear of the console
Rack A remote I/O rack connected via MADI or Optocore
Console A separate SD5 console connected using MADI or Optical fibre,

> ***Note that audio can be routed between SD5's. Setting the Port type to either MADI Console or Opto Send can provide up to 56 bidirectional audio paths between consoles.***

Once a port has been selected, the connections contained within it are displayed in the Sockets graphic which makes up the most of the rest of the **Audio IO** display.

The box to the right of each port selection button displays the current state of the connection:

New optocore ports can be added to the **ports** selection area by pressing the **add port** button, below the **Connection** box. User-created ports can also be deleted by pressing the **remove port** button, below the **add port** button.

Copying Audio and Listening to Copied Audio (MADI Recorder Setup)

Any incoming MADI or Optocore connected rack stream can be copied to any other MADI Output by selecting the incoming Port in the Ports list and using the **Copy Audio To** drop down menu. For example, if you want to copy Rack 1's Audio Inputs to a MADI equipped recorder connected on Port 2, select Port 1 in the ports list and then select MADI 2 from the **Copy Audio To** drop down menu.

The console will send the 56 channel MADI stream to MADI Output 2 and it can be recorded as necessary.

In addition, by connecting the recorder's MADI Output to the console's MADI 2 Input, the playback can be monitored in the same channels as the original source material. Just press the **Listen To Copied Audio** button to monitor playback and press it again to return to monitoring the live sources from the rack.

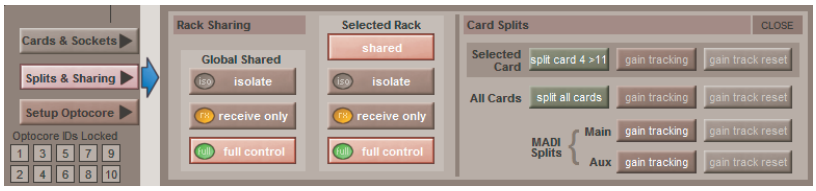
3.9.3 Port Hardware Configuration .....

The port is named automatically according to its connection type, as displayed to the right of the **ports** selection area. However, the name can be edited by touching the **Port Name** box or the keyboard symbol to its right, typing the new name into the QWERTY keyboard which appears, and pressing **OK**. The type of device connected to the port can be altered by touching the down arrow next to the **Device Type** box, located next to the **Port Name** box, and selecting the appropriate device from the drop-down list that appears. The physical port being used to connect the device can be altered by touching the down arrow next to the **Connection** box, to the right of the **Device Type** box, and selecting the appropriate connection port from the drop-down list that appears. The current status of the connection is displayed below the **Connection** box as either **connected** (in green) or **not connected** (in red).

> ***Note that the configuration of the Local I/O port is fixed, so no hardware changes are possible. You can, however, change the Port Name, the Group Names (relating to name of each physical card) and the Socket Names (the name of each physical connector on a card).***

3.9.4 Port Control .....

Normally, the input gain, phantom power and pad of each DiGiCo Rack input is controlled remotely from the SD5. However, in multi-console systems where Racks are shared between two DiGiCo consoles with MADI Connections, only one of the consoles can remotely control these rack settings. With Optocore connections either or both consoles can have control. Therefore, the level of control given to each console must be defined. Control options are displayed in the bottom-right area of the **Audio I/O** panel when the **Splits & Sharing** button towards the base of the panel is pressed:



There are three levels of control:

isolate: The SD5 will not exchange any control data with the rack. This means that the console will neither be able to adjust rack settings, nor adjust its own settings according to returning control data.

receive only: The SD5 will receive the rack's existing settings but not send control data back. This means that the console will not be able to adjust rack settings, but will be able to adjust its own settings according to returning control data.

full control: The SD5 will receive the rack's existing settings and will send control data back. This means that the console will be able to adjust the rack's settings and receive tallies back from the rack.

When the **Rack** port is selected in the main panel, its control can be defined as shared by pressing the **Shared** button. Individual racks can also be controlled using the **isolate**, **receive only** and **full control** buttons beneath the Shared button - these buttons will only affect the selected port.

3.9.5 The Socket Display .....

When a port has been selected from the **ports** list on the left, the individual connections within that port are displayed in the Sockets graphic, which makes up most of the rest of the **Audio IO** display. For Rack or Console ports, each column in the graphic represents an IO card, and the type of IO card is displayed at the bottom of each column. For the **Local I/O** port, each row represents a type of I/O socket.

Each individual socket displays the following information: the current socket name is across the middle, and the socket number within the card is in the top left-hand corner.

For analogue input sockets, the current gain is at the bottom, and the top right-hand corner displays a red **48** symbol if the socket's phantom power is switched on.

For analogue rack output sockets, there is a **-10** symbol in the top right-hand corner which is yellow to indicate that the 10dB pad is switched in, and white to indicate that no pad is present.

For digital inputs the status of Sample Rate Conversion On/Off is displayed.

Touching a socket within the graphic assigns that socket and its card to the area below the graphic for configuration, as described below.

3.9.6 Socket Conforming .....

In order to use the rack, the on-screen contents of the rack must match the cards physically installed in the rack connected. There are two ways of achieving this:

Manual Conforming

Select each card (column) and manually select the appropriate card in the **Card/Slot Type** drop down menu in the lower section of the window. Once the correct card type is selected, the card type name at the bottom the selected card will turn green, indicating the card type matches the card installed in the rack. If there is a mismatch, the card type name will be red, and the error should be corrected by selecting the correct card type.

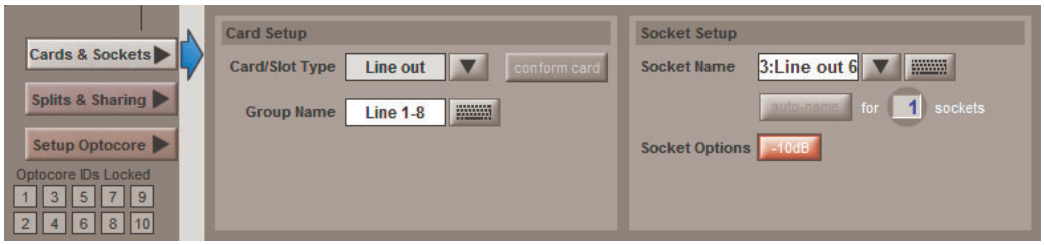
Automatic Conforming

The audio I/O can be automatically conformed for the whole console (using the **Conform All Ports** button in the bottom left of the panel) or the currently selected rack (using the **conform rack** button below the socket display). Pressing these buttons will correctly select the correct card for each slot. Once complete, all of the card labels beneath each slot should turn green.

It is also possible to auto-conform on a card-by-card basis: With a single card selected (by touching any of the sockets on that card), press the **Cards & Sockets** button towards the base of the screen, followed by the **conform card** button which appears in the area to its right.

3.9.7 Group and Socket Names .....

Cards and sockets are named automatically, according to the **Device Type**, **Card/Slot Type** and their position within the port. To edit these names, press the **Cards & Sockets** button towards the base of the **Audio I/O** panel to bring up the **Card Setup** and **Socket Setup** displays to its right:



Touch either the **Group Name** or the **Socket Name** box (or the keyboard symbols to their right), type the new name into the QWERTY keyboard which appears and press **OK**. Touching the down arrow in between the **Socket Name** box and keyboard symbol opens up the **Channel Name** display which enables commonly used words to be inserted quickly without the use of the keyboard.

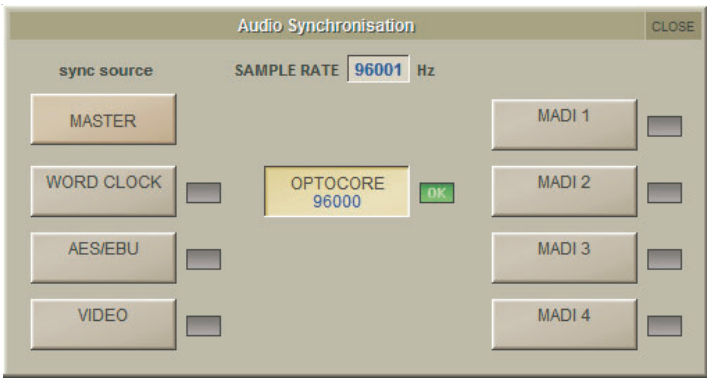
A range of sockets can be named with the same label and an incrementing number by using the **auto-name** function below the **Socket Name** box: To define how many sockets will be auto-named, touch the numeric display, turn the **Touch-Turn** encoder to the right of the screen until the numeric display below the keyboard symbol displays the correct number. Alternatively, touch the numeric display, type in the number of sockets to auto-name into the keypad that appears, and press **OK**. Once the number of sockets has been defined, the auto-name button becomes active. Pressing it will cause the name of the assigned socket to be replicated for all the sockets selected for auto-naming. If the assigned socket's name does not end in a number, a '1' will be added to it and incremented for the remaining sockets. If the assigned socket's name already ends in a number, that number will be incremented for the remaining sockets.

3.9.8 Socket Options .....

Depending on the socket type, further **Socket Options** are displayed below the **Socket Name** area.

3.9.9 Audio Sync .....

Selecting **Audio Sync** from the **Setup** menu opens the **Audio Sync** display. This is where the clock source is selected:



The SD5 will operate at Sample Rates of either 48000Hz (48kHz) or 96000Hz (96kHz), as configured in the **Session Structure** panel.

By default, it is set to clock internally but the standard Audio Sync method is Optocore when the entire system uses the device with the lowest Optocore ID (usually ID1) as its sync source.
This setting is saved within the session file so if any console(s) are connected to racks with optical fibre then all console engines should be set to Optocore as their sync source.

There are also times when the SD5 needs to be clocked externally. The Audio Sync panel allows you to control external synchronisation.
The SD5 will clock from the following sources : Word Clock, AES/EBU, Video Reference (not yet implemented), MADI & Optocore
In this situation one Optocore device should be set to clock to the external source and all other Optocore devices should be set to sync to Optocore.
Note : When a valid clock is detected on an external sync input, the corresponding Green OK box will light, even if that input is not selected as the clock source for the SD5.

3.9.10 Timecode & Transport .....

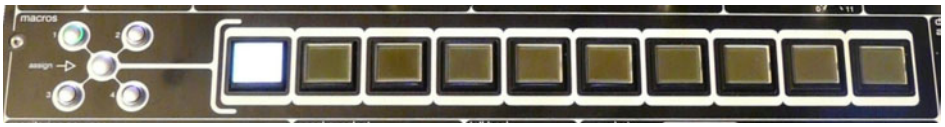
This section of the SD5 has not yet been implemented

3.9.11 Macros .....

Selecting **Macros** from the **Setup** menu opens the **Macros** display. This display is also opened by pressing the **assign** button in the **macros** area of the worksurface.

This is where macro commands can be assigned to the smart keys in the **macros** area located in the console's centre section (shown below), as well as to the function (F) buttons on the external keyboard and to the console's GPIs. Macros can also be fired directly from this list by touching the macro when none of the right-hand buttons is active.

The SD5's **macros** area has capacity for 40 macros, arranged in four banks of ten. Pressing any of the four bank buttons on the left of the **macros** area assigns the ten **smart keys** to that bank. The bank currently assigned to the smart keys is indicated by its button being ringed green.



The **Macros** display includes a list of all the macro commands which have been created, along with the button to which they have been assigned, if this has been selected. The list is scrollable using the scroll bar to the right of the list.

Note that this list therefore includes macros which have been created but have no trigger.

To create a new macro, touch the **new** button, in the top right-hand corner of the display. To create a macro based one that already exists, touch the **duplicate** button below the **new** button, followed by the macro you wish to duplicate. When either button is touched, a macro is created with the default name **macro n** where n is an auto-incrementing number, and the **Macro Editor** display (described below) is opened. A duplicate macro will contain all of the settings of its parent, apart from the name.

To edit a macro, touch the **editor** button below the **duplicate** button, followed by the macro you wish to edit. The **Macro Editor** display (described below) will then open.

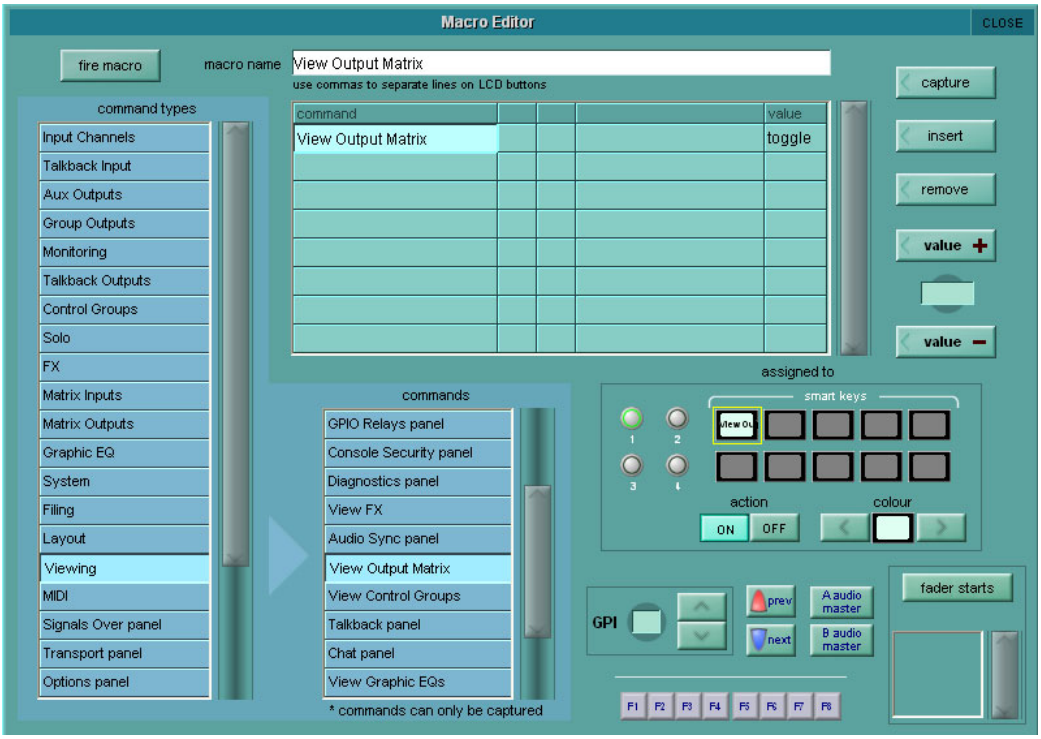
Macros can be assigned from the main **Macros** display without opening the **Macro Editor** by touching the **assign** button below the **editor** button, touching the macro you wish to assign, and then pressing the button to which you wish to assign the macro.

Macros can be deleted by touching **delete files**. To delete all the macros in the list, touch **select all**, followed by **confirm**. To delete one macro or a selection of macros, touch the macros you wish to delete followed by **confirm**. To delete a consecutive range of macros, touch **select range**, touch the first and last macros included in the range to be deleted, and touch **confirm**.

3.9.12 The Macro Editor .....

The **Macro Editor** is where macros are defined, including the commands included in the them and the control used to trigger them. Virtually any command within the console can be assigned to a macro, ranging from opening master panels to adjusting in-channel signal processing.

Note that fx parameters are only available once fx units are in use in the session.



The name of the macro being edited is shown at the top of the display. To switch to a different macro in the list, touch the new macro in the Macro display list (You may need to move the displays around the panel to access the list). To rename the macro, touch the **macro name** text box, type the new name using the on-screen or external keyboard, and touch **OK**. This name will be used in the Macros display and also in the LCD display within a smart key assigned to that macro.

Note that a line break can be inserted into the smart key macro name by typing a comma within the macro name text.

The list beneath the **macro name** text box, lists the commands currently included in the macro. When there are multiple commands in the included commands list, they are triggered in the order in which they are listed. New commands are added to the selected row in the list, overwriting any command previously in that row. To insert a row for a new command in between two adjacent commands, touch the row above which you want to insert the command, then touch the **insert** button to the right of the included commands list.
There are two ways of adding a command to the included commands list:

1. Touch the row in the list in which you want the command to appear, then touch the **capture** button, located in the top right-hand corner of the display. The button turns pink to indicate that it is active. Any commands now actioned on the console will then be added to the included commands list. Once all the desired commands have been actioned, deselect the **capture** button.

2. Touch the row in the list in which you want the command to appear, then touch one of the command types in the scrollable **command types** list to the left of the display. This brings up a list of the commands within that command type in the scrollable **commands** list in the lower half of the display. Touch the desired command to bring it into the included commands list.

For commands associated with worksurface controls (all command types above **System** in the **command types** list), the included commands list displays the command type (in the **channel type** column), the scope of channels included in the command where appropriate (in the **from** and **to** columns), the command's name (**controller**) and any value associated with the command. For command types associated with the master panel (from **System** down), the included commands list displays the **command**, along with any **filename** or **value** associated with it. The list can be scrolled if necessary using the scroll bar to its right.

The values in the **from**, **to** and **value** columns can be adjusted by using the Touch-Turn encoder and **value +** and **value -** buttons to the right of the included commands list. Touch the box to be adjusted to assign it to the encoder and value buttons. The present value is shown in the display in between the value buttons. If the **value** column displays something other than numeric values, the options are cycled using the Touch-Turn encoder and **value +** and **value -** buttons(cycling for example, between **on**, **off** and **toggle**). Values can also be typed in by touching the value box, typing the new value using the external or on-screen keyboard, and touching **OK**.

To remove a command from the list, touch the command to be removed and touch the **remove** button to the right of the included commands list.

The bottom-right of the **Macro Editor** is used to define what triggers the macro. The **action** buttons below the **smart keys** are used to define whether pressing the button triggers a macro **on** or **off** command. Selecting a new trigger for a macro automatically deselects any old trigger than might have been assigned.

Smart keys are selected by touching one of the eight bank buttons below the **assigned to** legend (causing the button's ring to light green, indicating that it is selected) followed by one of its five **smart keys**. The smart key will then display the first command from the included commands list. The colour of the smart key can be chosen using the arrow buttons in the **colour** area below the smart keys. The selected colour is displayed between the arrow keys.

GPIs are selected by touching the **GPI** number box and using the Touch-Turn encoder, or by using the arrow buttons to the right of the **GPI** number.

Function keys on the external keyboard are assigned by touching the **F1** to **F8** buttons at the bottom of the display.

The **previous** and **next** snapshot buttons on the control surface can also have macros associated with them, using the buttons to the right of the GPI area.

It is also possible to fire a Macro in response to the Audio Master being changed. Different Macros can be assigned depending on whether Audio Master is being switched to A or B. These are assigned using the **A audio master** and **B audio master** buttons to the right of the GPI area.

Fader starts are configured in the bottom right-hand corner of the panel. Pressing the **fader starts** button opens a small configuration pop-up (shown below) as well as a **Channel List** display.

The four buttons above the **fader starts** button define what fader action fires the macro – **fader up**, **fader down**, **mute off** or **mute on**. Once this has been defined, touching any channel row in the **Channel List** will add that channel fader to the fader start, as listed below the **fader starts** button. If the **ANY** button is active, the Macro will fire when any of the associated faders are moved to the specified state; if **ALL** is active, the Macro won't fire until all associated faders are in the specified state.

> ***Note that fader starts are associated with the channel, not the fader – if a channel is moved, any fader start functionality will move with it.***

Whenever a macro button is pressed, it performs what we call an On action. This is the first press of the macro button. The next press of the same macro performs an Off action. These On and Off actions can be the inverse of each other, so instead of having alternative presses of the macro button just toggle the state of a controller, you can program the macro button so that first press is a definite mute on command and the 2nd press of the macro button is a definite mute off command. This has the advantage of being able to provide an indicator on the Macro button of the state of the controller. On and Off states can have different colours and different text.

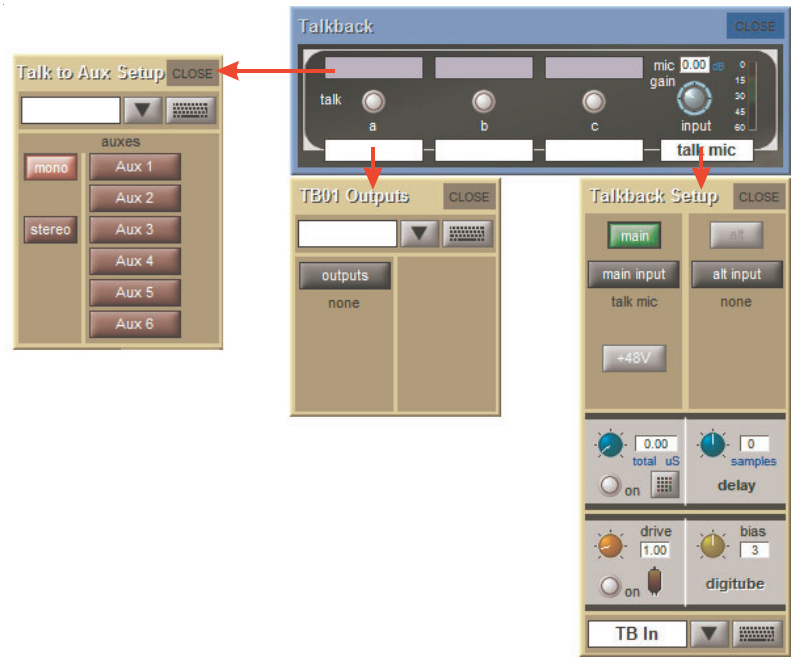
Macros can be tested by touching the **fire macro** button, located in the top left-hand corner of the display. Once the macro has been fully configured, close the **Macro Editor** display.

3.9.13 Talkback .....

The talkback area of the console is located in the centre section. The talkback area includes a **gain** control encoder and three **talk** bus selector buttons, labelled **a**, **b** and **c**. Pressing any of these **talk** buttons routes the talkback mic to that **talk** buss output, as assigned in the **Talkback** display. These buttons are momentary if held, and latching if pressed quickly.

Note that the input signal for the talkback mic need not be the XLR on the console surface.

The **Talkback** display is opened by selecting **Talkback** from the **Setup** menu. This is where the three talkback busses are configured.



In the right-hand side of the **Talkback** display, there is a mic **input** gain pot which is always assigned to the **gain** encoder in the worksurface talkback area. The pot's gain value is indicated in dB in the box above the pot. The talkback signal level is shown in the meter to its right. Touching the white box below the gain pot opens up the **Talkback Input** display which consists of an **input route** button. The current route is displayed below the button. Pressing the button opens up the **TB Input Route** display, which functions in the same way as all other input routing panels.

To the left of the input section of the display, there are three talk buttons labelled **a**, **b** and **c**, with text boxes beneath them. Touching each button enables and disables the corresponding talkback button on the worksurface. The button rings red to indicate that the buss is active. Touching the text box beneath the button opens the **TB Outputs** display for that talk bus. This consists of a naming area and an **outputs** button. The first output currently selected is displayed below the button.

Pressing the button opens up the **TB Output Routes** display which functions in the normal way. The first selected route appears in the text box below the talk button.

The three blue coloured text boxes above the a,b,c buttons provide access to a panel allowing the selection of a number of aux busses.

Once selected, the Talkback button will automatically activate the talk To Aux functions on those busses. This enables you to talk to multiple Auxes of your choice at the press of a single button.

Note that the talk buss can be routed to more than one output.

Talk To Auxes

In order to talk to individual or multiple of Aux outputs there is an assignable row of controls on Aux channels, controllable independently or from the **Talkback** panel which has a **Talk to Aux Setup** list for each Talk button.

This is implemented as a Talkback Input channel which uses a single engine processing channel to provide the aux sends. This channel appears, in a default session, on its own in the last bank on the left of the console.

On the Aux Output channels, hold one of the **Assign** buttons next to the row of assignable controls and then touch the **talk** area of the screen. This will assign the selected rotary control and switch to the talk level and talk on/off.

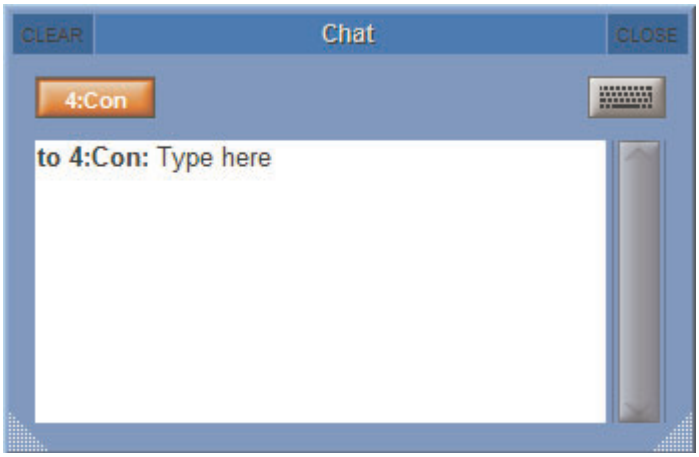
These are used to switch Talk to Aux On/Off, control the level of talkback signal and set the level of dim when the talk is active. A **dim** function is available for reducing the level of aux programme while the talk function is active. This is set using the 2nd Function of the assigned controls.

The worksurface **talk** buttons a, b, c can also be programmed to activate the Talk function on single or multiple user defined channels.

Open the **Setup/Talkback** panel and touch the label above the **talk** button, then select any combination of Mono and Stereo Auxes to activate with that button.

3.9.14 Text Chat .....

Text messages can be sent from console to console on any MADI Port that is defined as "**MADI Console**" or Optocore Port designated **Opto Send**.. With MADI or Optocore connections In/Out from the relevant port on the SD5 to another SD5 In/Out, open the **Setup>Text Chat** panel, press the correct port button to activate the link on that port and then type a message. When you press the keyboard **Enter** key, the message will be transmitted and will appear in the other console's Text Chat panel. This process is bidirectional so the other console can send messages back in a similar way.



SD5 Operation Manual

Chapter 4:

Network/Mirroring & Multiple Console Setups

4.1 Network and Mirroring

4.1.1 Network Configuration .....

The SD5 console is fitted with a network card and offers the possibility of remote controlling the console from a standard PC. In order to take advantage of this, you need to verify the console networking is functioning and synchronise your session between the two devices.

The SD5 software on the PC is exactly the same as the console software and the USB key that is provided with the console will contain a file called SD5_xxx.exe that should be used to install the software on the PC.

Alternatively download the Offline Software from the Support downloads section at www.digico.biz.

Run this self extracting ZIP file and change the install path from D:\SD5 to C:\SD5 - this will copy the SD5 folder and its contents to C:\SD5. Now create a new folder called C:\Projects which is where you will save and load your sessions from.

Finally, open the C:\SD5 folder on your PC and double click on the SD5.exe program file to run the application.

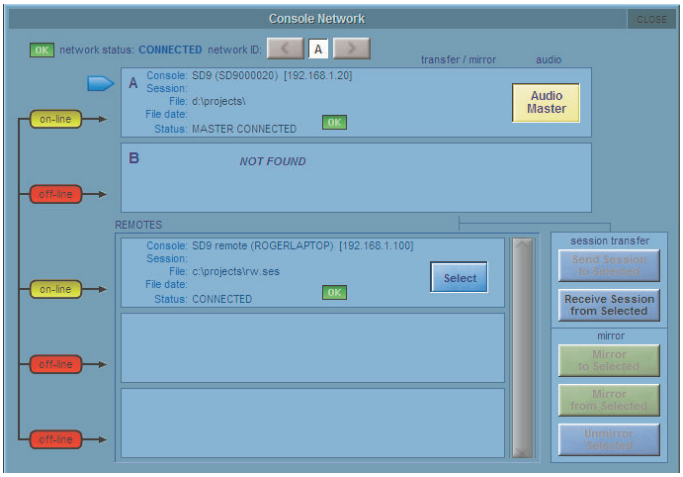
> ***IMPORTANT NOTE - When mirroring a console to a PC you are required to set a static IP address on your PC which is in the same subnet as the console itself. The console's subnet mask is 255.255.0.0 and its IP address can be seen next to its entry in the Network panel - in the picture below it is 192.168.2.77.***
>
> ***The IP address of the PC must start with 192.168.xxx.xxx. and must be different to that of the console.***
>
> ***The setup of network addresses on a PC may differ from one operating system to another so if you are in doubt, please consult the documentation for your PC's operating system before proceeding.***

As an example, on Windows XP, the IP address and subnet mask can be changed by:

1) Opening the **Control Panel>Network Connections.**
2) Right clicking on the **Local Area Connection** and selecting **Properties.**
3) Double Click on **Internet Protocol (TCP/IP)** from the list to show its **Properties.**
4) Set the radio button to **Use the following IP address**
5) Type the **IP Address** and **Subnet Mask** as detailed above
6) Confirm the changes and restart the computer

Before the console and PC can be mirrored, you should ensure that a standard crossover network (Ethernet) cable is connected between the two devices. Without this connection, the two devices will not “talk” to each other.

To open the Network window, touch the **Network** button at the top of the Master Screen. The following window will open…



Note - The picture above shows a console identified as an SD9 - this entry will reflect the console model used

When running SD5 software on a PC the software will appear in a number of "floating" windows, each of which represent a console section. A screen touch on the console is simulated by a right click with the PC mouse. To switch between console sections use the small toolbar buttons that also appear on the screen marked Master\Left\Right\Overview.

4.1.2 Mirroring for the first time .....

If the console and the PC are connected together, but do not see each other you will see red offline indicators next to the device entries in the network list. In this case you may need to enable Networking.

There is an option in the **OPTIONS/SESSION** tab to **ENABLE CONSOLE NETWORK (YES/NO)**. This must be set to YES on both devices. After doing this, shutdown and restart both devices and when the sessions are loaded go to the NETWORK window and you should see yellow Online lights against Engine A and one of the Remote Control slots as in the picture above. This indicates that the network has connected the two devices but they are not yet mirrored.

In order to mirror the two devices, they need to be running the same session. The way to achieve this is to load the session into the console, then transfer it to the remote PC using this Network window.

1. Load your session into the console.

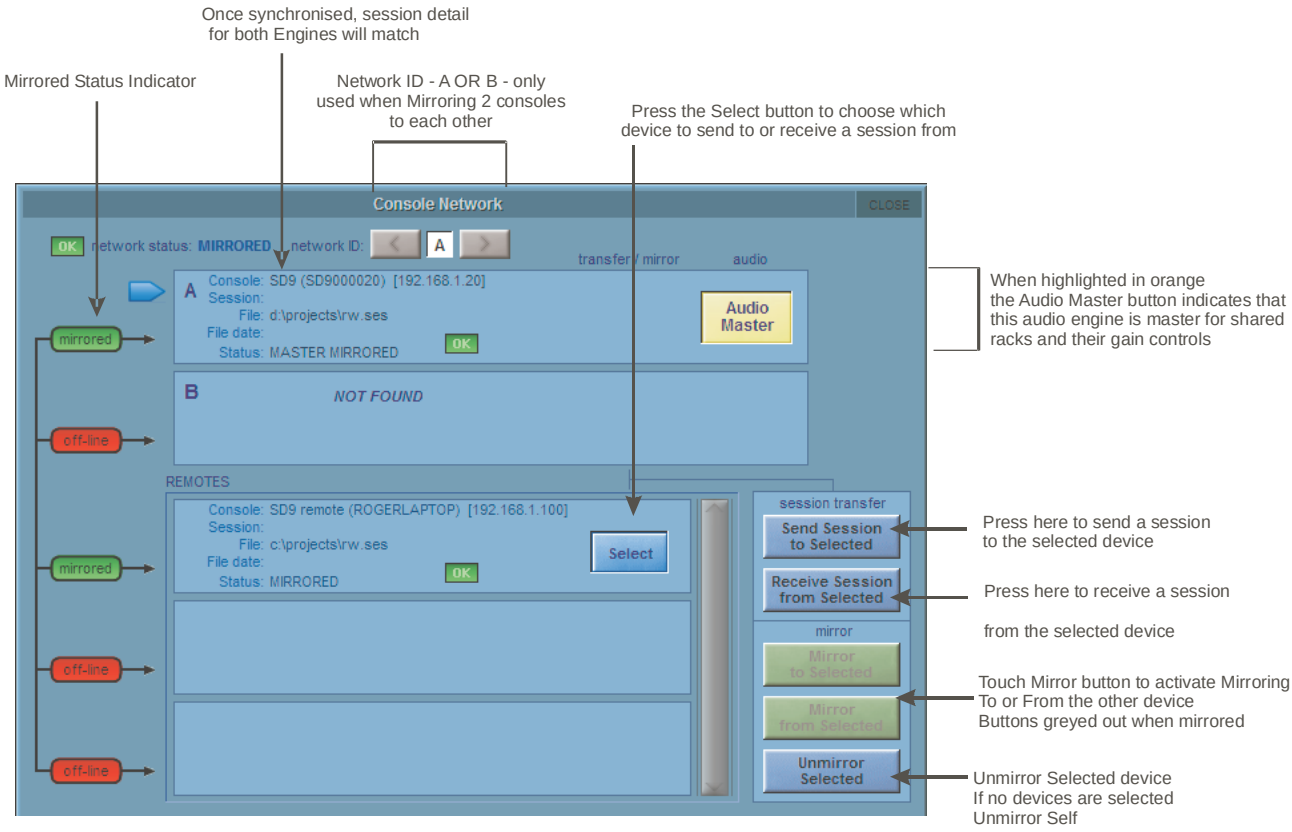
2. Open the Network Window
3. Press the **Select** button for the Remote PC and then press the **Send Session To Selected** button.

This will copy your current console session and load it into the remote PC. Once this is done, the remote detail section will change to reflect the new loaded session. You can also check that this process is complete by looking at the remote PC and waiting for the progress bar to indicate that the session has finished building.

You can now press the **Mirror To Selected** button or the **Mirror From Selected** button.

> ***Note: We recommend mirroring the console** TO **the remote PC to ensure that the current state of the console is transferred to the remote PC.***

The Mirror buttons will turn green, and the console is now mirrored.


Once synchronised, session detail for both Engines will match
Mirrored Status Indicator
Network ID - A OR B - only used when Mirroring 2 consoles to each other
Press the Select button to choose which device to send to or receive a session from
Console Network
CLOSE
OK network status: MIRRORED network ID: A
transfer / mirror
audio
A Console: SD9 (SD9000020) [192.168.1.20]
Session:
File: d:\projects\rw.ses
File date:
Status: MASTER MIRRORED
OK
Audio Master
B NOT FOUND
mirrored
off-line
REMOTES
Console: SD9 remote (ROGERLAPTOP) [192.168.1.100]
Session:
File: c:\projects\rw.ses
File date:
Status: MIRRORED
OK
Select
mirrored
off-line
off-line
session transfer
Send Session to Selected
Receive Session from Selected
mirror
Mirror to Selected
Mirror from Selected
Unmirror Selected
When highlighted in orange the Audio Master button indicates that this audio engine is master for shared racks and their gain controls
Press here to send a session to the selected device
Press here to receive a session from the selected device
Touch Mirror button to activate Mirroring To or From the other device Buttons greyed out when mirrored
Unmirror Selected device If no devices are selected Unmirror Self

Note - The picture above shows a console identified as an SD9 - this entry will reflect the console model used

Note - The exact method of Mirroring is determined by a setting in the Options panel / Sessions tab - see below

4.1.3 Mirroring Mode .....

This option determines how the console will behave when Mirrored via a network to another console or Offline PC.

This option is saved for console not in the individual session.

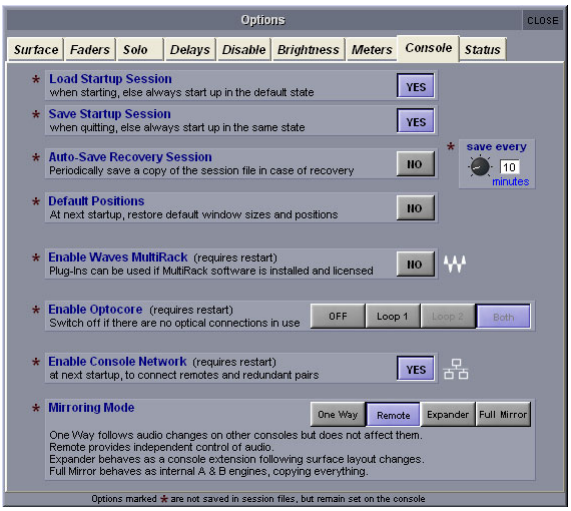
There are 4 modes of operation.

Full Mirror - all functions mirrored from one device to the other - this mode should be used on both engines in an SD5.

Expander - intended for use with an SD5 console and an EX007 Expander unit. The second device mirrors most functions from the first device but significantly, allows different banks to be selected on the different devices.

Remote - intended for use with a PC being used as a Remote Control for a console. Allows different banks to be selected and different setup options on each device.

One Way - this mode is intended for remote monitoring of what another device is doing. If a device is in One Way Mirror mode, it can "see" what the other mirrored device is doing but cannot control the other device. This mode is only likely to be used in exceptional circumstances.



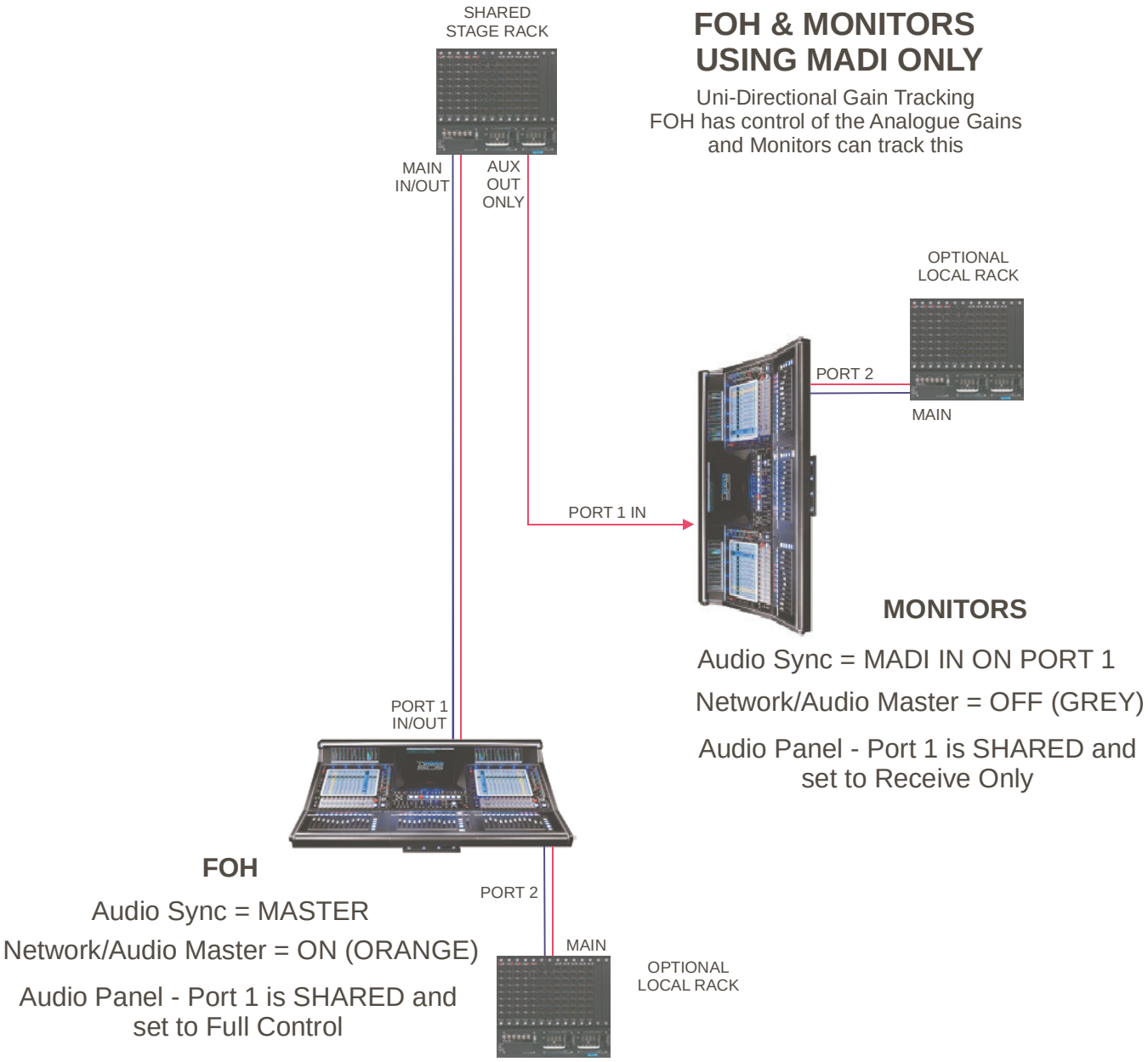
4.2 Multi-console Setups

4.2.1 FOH & Mons sharing a stage DiGiRack (MADI) .....

It is possible for 2 SD5 consoles to share the inputs from a remote DiGiRack by using the 2 sets of MADI ports on the rack.

In this situation, only one of the consoles can control the rack functions such as the analogue gain of the mic pre amp and the phantom power switching.

The suggested setup for two SD5 consoles which are sharing the same racks is as follows:



The recommended connection between the Monitor console and Stage Rack is a single MADI OUT from the Stage Rack's AUX MADI connected to one of the console's MADI IN ports.

The FOH (Master console) is connected via MADI IN and OUT to the stage rack.

A similar method can be used if the Monitor console requires gain control and the FOH console will track the gain changes.

MADI OUT from the Stage Rack's AUX MADI connected to the FOH console's MADI IN..

The Monitor (Master console) is connected via MADI IN and OUT to the stage rack.

Each console may also optionally be connected to one or two Racks for its own local signals.

Note - The console that is controlling the gains should be set to Setup / Audio Sync = Master and the console that is tracking should be set to Setup / Audio Sync = MADI X (where X is the incoming MADI signal's port)

1) Open the **Setup**>**Audio I/O** panel, select the shared rack port from the port's list (eg Port 1) and then press the **Shared** button for that rack. Do this on both consoles and the rack control functions **Isolate/Receive Only/Full Control** will become available.

2) One console should be fully connected to the racks using the **Setup**>**Audio I/O** panel's **Full Control** button for the **Shared** racks.
This console's **Network / Audio Master** button should be pressed (Orange) to allow Full Control to be set.

3) The operators should agree on and set a level of analogue gain that provides enough headroom for the required application.

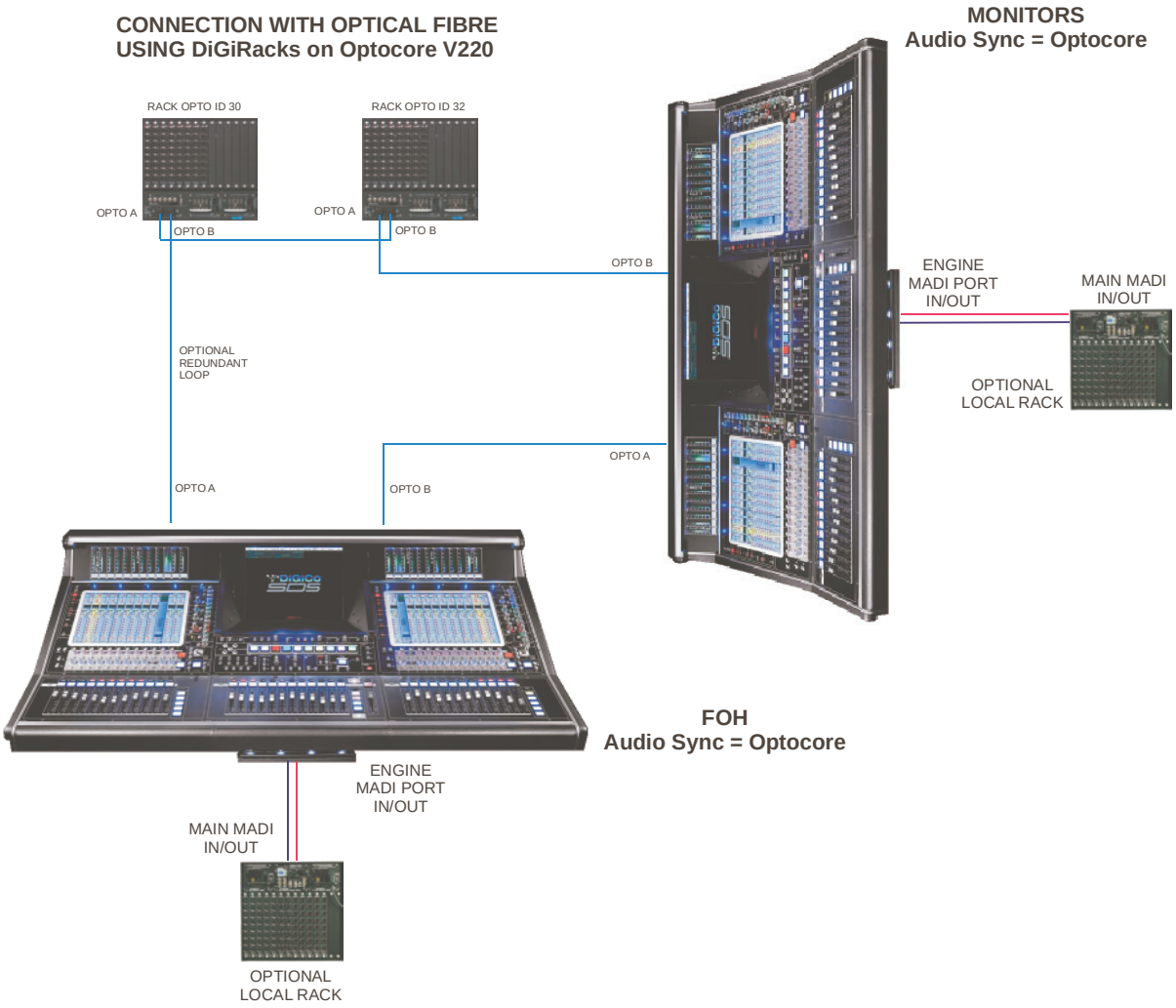
4) The second console should connect to the Shared racks in **Receive Only** mode
This console's **Network / Audio Master** button should be off (Grey) to allow Receive Only to be set.

5) Gain Tracking (the **Track** buttons at the top of the Input channel screen) should be switched on for the console that is in **Receive Only** mode for all the channels that are being shared.

6) When an analogue gain control is changed on the "Master" console, the "Slave" console's analogue gain should reflect the changes and the digital trim control should compensate for this change by moving by the same amount in the opposite direction.

4.2.3 FOH & Mons sharing DiGiRacks on Optocore (V220).....

If 2 SD5's and Racks are connected with optical fibre, a similar setup can be achieved in the following way:



In this setup, you are limited by Optocore firmware Version 220 to four SD5 engines (2 Redundant pairs) and four Optocore connected racks. The system can only run at a sample rate of 48KHz.
Only one of these consoles will be able to use the outputs on Optocore connected racks and this console must be set to Optocore ID1. The other console should be set to ID3.
These IDs are set from the Network panel in the Master screen.
The four racks can have any Optocore ID in the range ID30 to ID33. In the above example they have ID30 and ID32. These IDs are set on the racks themselves.

The connections that should be made are shown in the diagram, as follows:
The fibre optic cables connect between each device on the optic loop, and connect an “A Port” to a “B Port”. You should not connect the optic cables in A-A or B-B configurations. The cables connect between each device to form a closed loop. This is necessary for the redundant loop to operate correctly.
The diagram also shows each console having a local MADI connected DiGiRack using BNC MADI cables.

The DiGiRack Main MADI Port is connected to one of the MADI Ports on the SD5

Open the **Setup > Audio Sync** panel and set the Sync source to be Optocore. Do this on both consoles.
Save the Sessions.

Now open the **Setup > Audio IO** panel on both consoles, and press the **Conform All Ports** button in the bottom left corner. The console will “look” down the connected optical fibre cables and auto discover and conform all the racks it can find. In this example, they will find 2 optic stage racks.

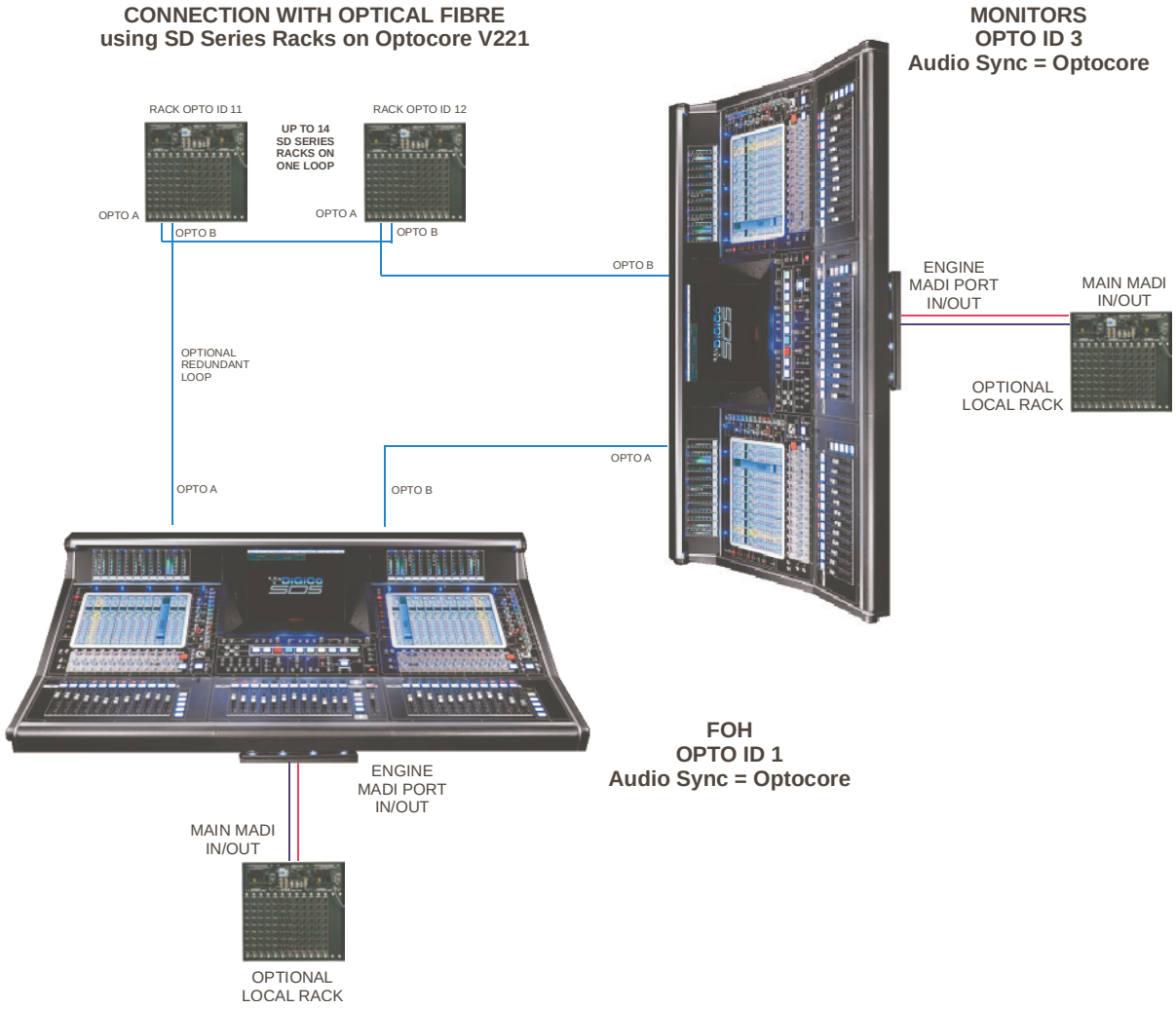
In its default setup, none of the optocore connected DiGiRacks will be defined as shared. This means that either console will be able to control the rack and adjust Mic Amp Gain, Phantom Power, output pads etc.

If you are happy for either desk to control the racks, then you can leave the sessions with these default settings. Making changes to this default state allows you to define the shared status of each rack. If you set a rack to be in full control, then that console will have full control of the rack. If you set a rack to be in receive only mode, then that console will not be able to make changes to mic amp gain etc, but will “see” the changes made by the other console. This is necessary for Gain Tracking to function. The third option is isolate, and when in this mode, the console will not be able to make changes, nor see changes made by someone else. Gain tracking will not work if the rack is set in isolate mode.

To set a console as the master controller for the racks : In the Audio IO Panel, select the appropriate stage rack. Press the **Splits and Sharing** button. In the section titled **Selected Rack**, press the **shared** button. It will default to the Isolate setting. Then press the **full control** button. A warning will remind you that going into full control may affect the live audio.. then press **Yes**. If required, repeat this process for the second stage rack.

To set racks to be in receive only mode : In the Audio IO Panel, select the appropriate stage rack. Press the **Splits and Sharing** button. In the section titled **Selected Rack**, press the **shared** button. It will default to the Isolate setting. Then press the **receive only** button. A warning will remind you that your session will change to correctly reflect the actual settings on the rack.. then press **Yes**. If required, repeat this process for the second stage rack.

4.2.4 FOH & Mons sharing SD Series Racks (Opto V221) .....



It is possible for 2 or more DiGiCo consoles to share the inputs from remote stage SDRacks using optical fibre cables. It is also possible for the output cards in the SDRacks to be allocated to the consoles on a card by card basis.

The following example describes how to set up 2 consoles with a pair of stage racks in a Front of House & Monitors configuration. The connections that should be made are shown in the diagram, as follows.

The fibre optic cables connect between each device on the optic loop, and connect an “A Port” to a “B Port”. You should not connect the optic cables in A-A or B-B configurations. The cables connect between each device to form a closed loop. This is necessary for the redundant loop to operate correctly.

The diagram also shows each console having a local MADI connected SDRack. These are connected using pair of BNC MADI Cables between one of the MADI ports on the console and the Main MADI ports on the SDRacks. Additional redundant MADI cables can be used, connected the redundant MADI ports on the console to the Aux MADI Ports on the SDRack.

Console Setup & Operation

To ensure correct operation of this system, it is necessary to ensure that the console and session settings are correct.

Each Optically connected device must have a unique ID. On each console, open the **Network** panel on the Master Screen. From the drop down list at the top of the panel, set the ID of each console. We would recommend setting the FOH console to ID1 and the monitor console to ID3. Even numbered ID's are used for Redundant engines in Mirrored engine setups therefore if you are mirroring two single engine consoles, they should be set as ID1 for the FOH console and ID3 as the Monitor console.

Similarly, each SDRack should have it’s ID set. Rack ID’s start from 11; this example uses Optocore ID’s 11 & 12 for the 2 connected racks.

On each console, ensure that the session sample rates are the same. The sample rate is set in the **Files > Session Structure** panel.

Open the **Setup > Audio Sync** panel and set the Sync source to be Optocore. Do this on both consoles.

Save the Sessions.

Then open the **Setup > Audio IO** panel on both consoles, and press the **Conform All Ports** button in the bottom left corner. The console will “look” down the connected optical fibre cables and auto discover and conform all the racks it can find. In this example, they will find 2 optic stage racks.

If the conformed racks in each of the engine's Audio IO panels do not match the other console, then the system will not map correctly. Before the system is mapped, you should allocate any SDRack output cards. Press the **Setup Optocore** button select / deselect output cards as required. Once this is complete, press the **Remap All Optocore** button.

[For more detailed information on the Optocore Setup, please refer to Optocore_221_User_C.pdf which is available for download from the Support section of the DiGiCo website.]

In its default setup, none of the optocore connected SDRacks will be defined as shared. This means that either console will be able to control the rack and adjust Mic Amp Gain, Phantom Power, output pads etc.

If you are happy for either desk to control the racks, then you can leave the sessions with these default settings. Making changes to this default state allows you to define the shared status of each rack. If you set a rack to be in full control, then that console will have full control of the rack. If you set a rack to be in receive only mode, then that console will not be able to make changes to mic amp gain etc, but will “see” the changes made by the other console. This is necessary for Gain Tracking to function. The third option is isolate, and when in this mode, the console will not be able to make changes, nor see changes made by someone else. Gain tracking will not work if the rack is set in isolate mode.

To set a console as the master controller for the racks : In the Audio IO Panel, select the appropriate stage rack. Press the **Splits and Sharing** button. In the section titled **Selected Rack**, press the **shared** button. It will default to the Isolate setting. Then press the **full control** button. A warning will remind you that going into full control may affect the live audio.. then press **Yes**. If required, repeat this process for the second stage rack.

To set racks to be in receive only mode : In the Audio IO Panel, select the appropriate stage rack. Press the **Splits and Sharing** button. In the section titled **Selected Rack**, press the **shared** button. It will default to the Isolate setting. Then press the **receive only** button. A warning will remind you that your session will change to correctly reflect the actual settings on the rack.. then press **Yes**. If required, repeat this process for the second stage rack.

SD5 Operation Manual

Chapter 5:

Troubleshooting

5.1 Troubleshooting

5.1.1 Starting the console .....

If, for any reason, you have a problem starting the console, turn both power supplies off and on again and as the console starts up, hold the keyboard **SHIFT** key. This will enable you to select the **Revert To Defaults** option that will appear on the screen and the console will start up with an empty session, ignoring any previous startup or automatic recovery sessions.

5.1.2 Audio not passing on certain channels .....

There are many things in the audio processing path that could prevent a signal from passing from its input to an output or the monitoring system - here are some things to check if this situation occurs:

The input channel is set to use its ALT Input - look for a small red button at the top of the on screen channel marked ALT IN - in this case, assign the channel by touching the screen and press the ALT input button at the top of the centre worksurface section.

Inserts In on Input channel - either channel insert A or B is active but has no Send & Return route.

Channel or Group fader down - check that all faders in the path of the signal are up

No Output Routing - touch the bottom of the input channel screen to open the output view and ensure that the channel is routed to the correct buss or Direct output

Inserts in on Group channel - the buss that the channel is routed to has insert A or B active but has no Send & Return route

Something is soloed - a solo is active on one of the console channels - press Solo Clear at the top of the centre worksurface

Hard or Soft Mute on Input Channel or Group - a mute is active on either the input or output channel in question - hard mute is accessed by pressing the 2nd Function button and using the normal channel mute button.

Control Group fader down - the channel in question is the member of a Control Group that is muted or turned down.

Gate In Input Channel or Group - the input or output channel has an active gate that is not opening.

5.1.3 Snapshots not recalling as expected .....

When a Snapshot is stored, all of the console settings are included but when it is fired only the settings that are included in the Global and individual Recall scopes (ticked in green) will be recalled.

Most channel settings can be made SAFE from all Snapshot recall using the buttons in the channel setup panels that are accessed by touching the top of an on screen channel.

If the Auto Update button is active in the Snapshot panel, the current Snapshot is updated whenever you change a console setting according to the Auto Update Scope. This may lead to some confusion about the contents of the saved Snapshot.

5.1.4 Snapshots not inserting as expected .....

When a Snapshot is inserted in the list using the Insert New or Duplicate Selected buttons, the new Snapshot will be placed below the SELECTED Snapshot (the one marked in green) not below the CURRENT Snapshot (the highlighted one in the list)

5.1.5 Assigning console controls .....

If you have assigned a bank to the screen and are trying to adjust a specific parameter but something else is being changed it is possible that the worksurface 2nd Function button is active.

If this button is pressed the following alternative controls become available:

Channel Mute button becomes the Hard Mute button
Aux ON/OFF switch becomes Aux Pre/Post switch
Stereo Aux sends become stereo Aux pans
Output channel coarse delay becomes output channel fine delay

It is also possible that the channel which is being adjusted is not the intended channel - make sure that the correct channels are assigned to the screen by checking the small channel numbers at the top of the on screen channel.

5.1.6 Console controls not affecting the audio .....

If none of the console worksurface controls are affecting the audio, it is possible that the worksurface **Surface Online** button is active in the Snapshots section. If it is flashing then the surface is **OFFLINE -** press the button again to apply the current worksurface settings to the audio or press the **RTN To Audio** button to take the worksurface back to the state that it was in when the Surface Online button was first pressed - this is likely to change worksurface settings but not the audio.
If the problem is not related to the Surface Online button then press the **System>Reset Surfaces** button on the Master screen - this will cause all the faders to briefly jump to a different position, then return to their previous position.

Important Note - A Reset Surfaces command result in a brief pause in any audio passing through the console Local I/O.

5.1.7 Channels not appearing on the worksurface .....

If any channels are no longer accessible from the worksurface, it is likely that a bank of channels has been cleared using the **Clear Bank** LCD Function. To get these channels back onto the surface use the **ASSIGN FADERS** LCD function in conjunction with the **Layout>Channel Faders** panel on the Master screen - See the Getting Started Chapter for more details.

5.1.8 No signal from the Solo buss .....

If either of the Solo busses don't appear to be passing audio, open the Solos panel on the Master screen and check that the Solo level control at the bottom of the panel is turned up. This is not the same control as the Solo trim on the worksurface and can be set by touching it and using the **Touch Turn** control or assigning it to any of the worksurface centre section Master faders using the buttons in the on screen Solo panel.

5.1.9 Signal from the Solo buss when nothing is soloed .....

When nothing on the console appears to be soloed, it is possible to derive a signal from the Solo buss. This is the result of the **No Solo** function in the Master screen Solos panel being set to monitor either a group or aux buss. By default, the setting allows monitoring of the Master Buss but this can be prevented by touching the No Solo button and removing the Master Buss selection from the Stereo Groups section.

5.1.10 Resetting the console .....

There are two different types of console reset. There should be no need to use these functions in normal operation but if there is either a computer or audio problem that cannot be resolved in any other way you should be quite clear on the 2 different types of Reset.

System>Reset Engine on the Master Screen (F11 is the keyboard equivalent) - this button will reset the audio engine but not the control PC. Be very careful with the use of this function as it will interrupt the audio for a few seconds and can possibly cause unwelcome audio side effects (potential ticks, pops etc)

The **Restart** button in the **System** menu or on the console rear panel (small square red button next to the MADI connections) - this button will restart the control PC but will not interrupt the audio as the audio engine is not affected. You will have no control of the audio settings until the console has rebooted so it is not advisable to try this in normal circumstances.

There is also a **System>Reset FX** which only resets the internal FX units if, for example, you have accidentally created a feedback loop and want to quickly silence the result before troubleshooting the cause.

5.1.11 Meters .....

If the console's meters are not working in the required or expected way please check the Options Menu Meter tab on the Master screen - there are several meter configurations to choose from.

5.1.12 Joystick not responding as expected .....

The centre section worksurface joystick can be used to control stereo panning if required. If a channel is assigned by touching it on the screen, the on screen pan position indicator will contain a vertical green line - this is the current position of the joystick. To adjust the pan, move the joystick until it meets the actual pan position and then the pan control will be "picked up" and be movable with the joystick.

5.1.13 Optional Features .....

There are a number of controls on the SD5 which have not yet been implemented (at June 2012) or are specific to an option package - these are:

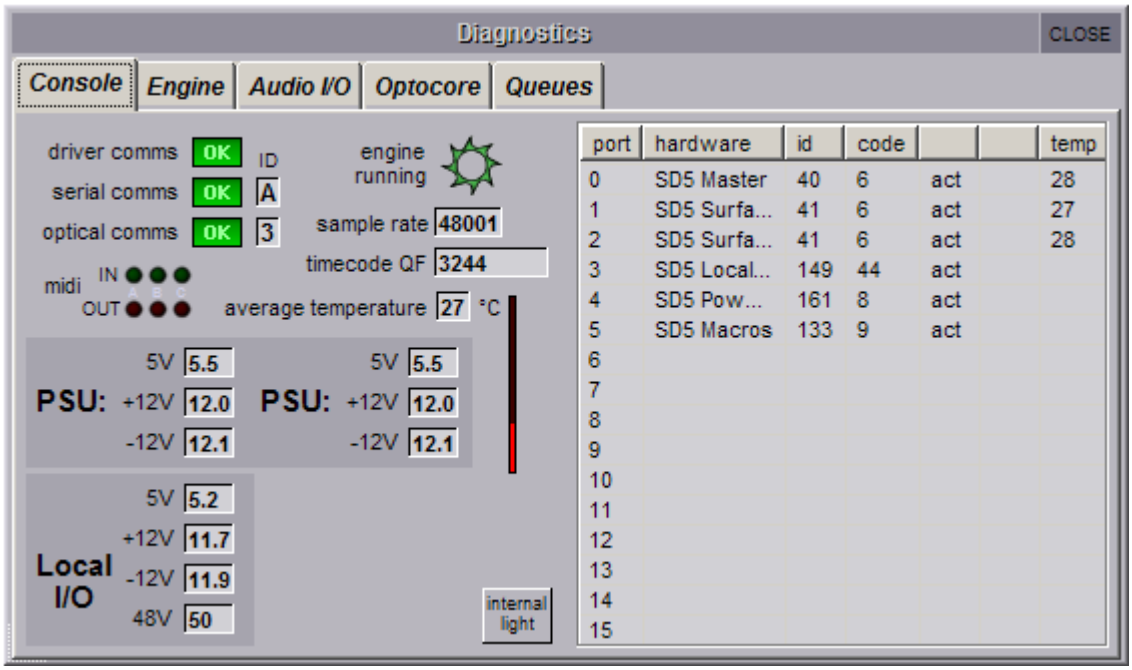
Dynamic Automation - Not yet implemented

5.1.14 Diagnostics .....

If you are experiencing any hardware problems with the SD5 you may be required to check the **System>Diagnostics** panels.
Basic details of these are as follows:
To Open the Diagnostics Panel, touch System>Diagnostics.
The Panel that opens has 5 Tabs; Console, Engine, Audio I/O, Optocore & Queues

Console

The Console diagnostics provides information about the condition of the console hardware, including power supplies, the worksurfaces and local I/O connection, and other physical interfaces.



Significant Parameters in the Console Tab are :

Engine Running Pin Wheel : When the Engine is running, the Green Pin Wheel will turn continuously. If the Engine stops, the Pin Wheel will turn Red and will stop turning.

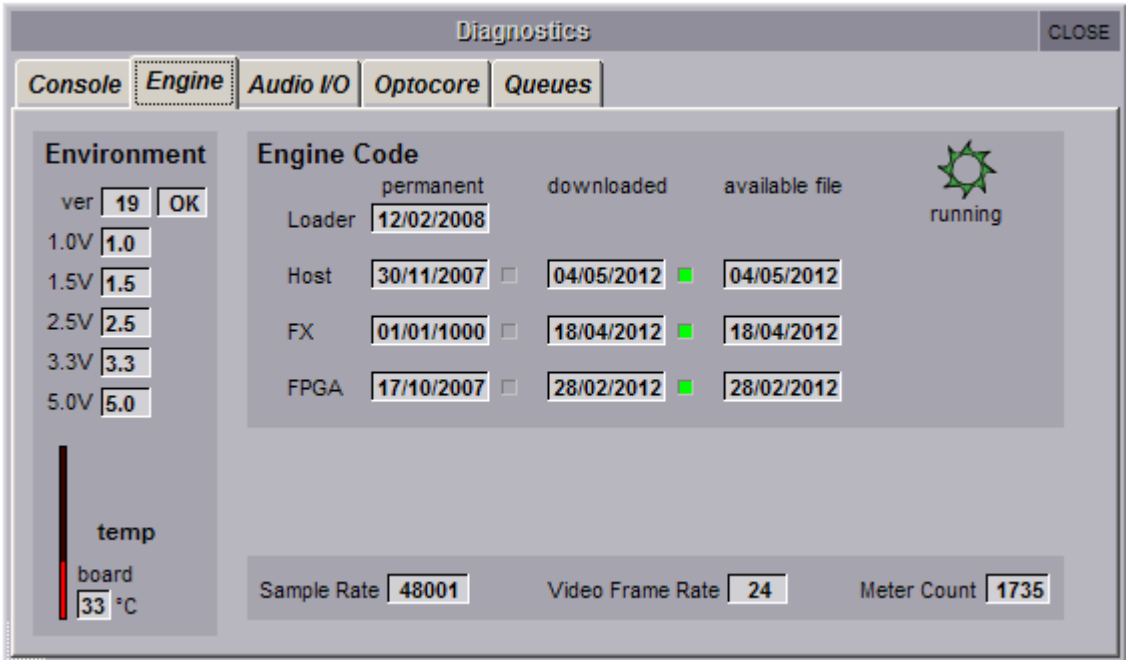
MIDI In / Out : These activity LEDS show MIDI activity on the physical Ports. If MIDI functions within the Console do not appear to be working correctly, it could be useful to monitor MIDI activity here.

PSU : The Power Supply Voltages displayed in the Console Diagnostics are measured on the Local I/O Board, and can help when diagnosing Power Supply problems. The A+B OK indicator shows that both power supplies are switched on. If one supply is switched off, the Green “OK” will be replaced by a Red “Err” indicator.

The right hand side of the Console Tab shows the Serial devices of the Console : The 3 worksurfaces and the Local I/O. For each port or device, the table shows hardware ID, Firmware Code Version and Temperature.

If one of the four serial devices is missing from the list, or not functioning correctly, then a hardware failure has occurred. *Contact your local DigiCo dealer….*

Engine



The Engine diagnostics are split into two sections.

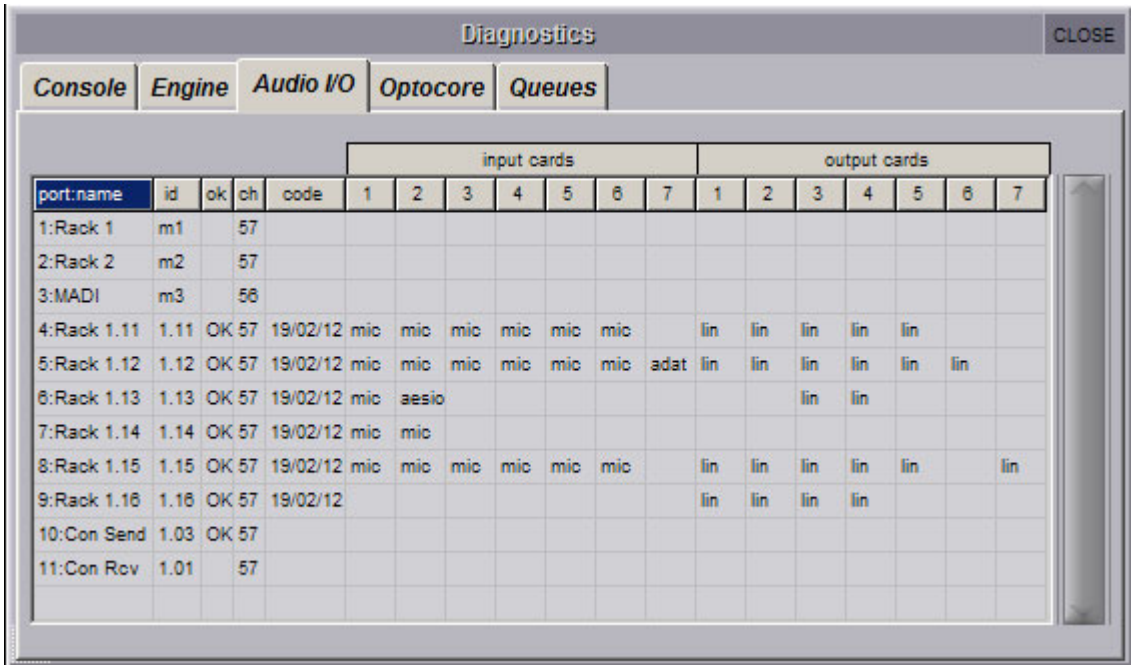
The Environment section displays the version of Engine Supervisor Code on the Engine Board. This can only be upgraded with a computer and a Microchip programmer. This is not user-upgradable.
It also shows Power Supply measurements on the Engine Board. These will be displayed as numerical values. If you have a faulty power supply, or a fault on the Engine Board, these values may show as LO. If this is the case, contact your DiGiCo dealer for assistance.

The Engine Code section of the Engine tab displays the release dates of Host Code, FX Code and FPGA Code in the Engine. These codes are written into hardware.

The “downloaded” column will show the dates of the code that the console is actually running. Following a software upgrade, the “available file” dates may be newer than the “downloaded” dates, and if this is the case, you should update your console.

At the bottom of the Engine diagnostics tab, the Sample Rate, Video Frame Rate and Meter Count are displayed. The values here are to assist authorised DigiCo service partners in locating the cause of specific faults, and have no other practical use.

Audio I/O



					input cards							output cards						
port:name	id	ok	ch	code	1	2	3	4	5	6	7	1	2	3	4	5	6	7
1:Rack 1	m1		57															
2:Rack 2	m2		57															
3:MADI	m3		56															
4:Rack 1.11	1.11	OK	57	19/02/12	mic	mic	mic	mic	mic	mic		lin	lin	lin	lin	lin		
5:Rack 1.12	1.12	OK	57	19/02/12	mic	mic	mic	mic	mic	mic	adat	lin	lin	lin	lin	lin	lin	
6:Rack 1.13	1.13	OK	57	19/02/12	mic	aesio								lin	lin			
7:Rack 1.14	1.14	OK	57	19/02/12	mic	mic												
8:Rack 1.15	1.15	OK	57	19/02/12	mic	mic	mic	mic	mic	mic		lin	lin	lin	lin	lin		lin
9:Rack 1.16	1.16	OK	57	19/02/12								lin	lin	lin	lin			
10:Con Send	1.03	OK	57															
11:Con Rcv	1.01		57															

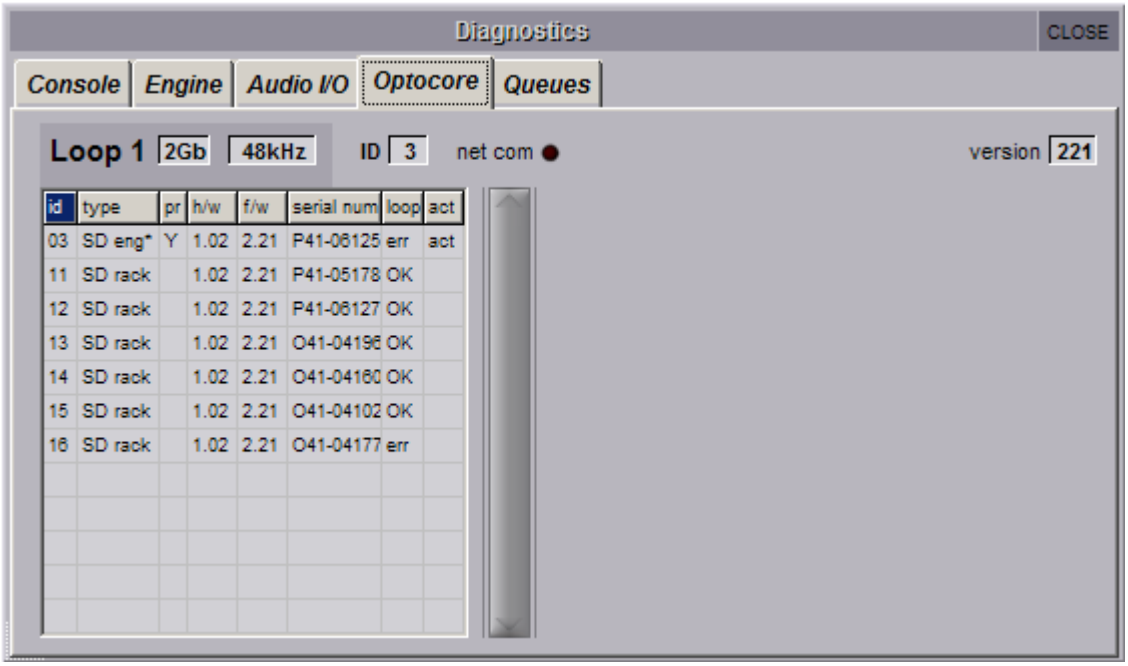
The Audio I/O tab provides detailed information about the DigiCo Racks connected to the console.

The SD5 has four MADI ports. For each port, detailed information regarding the configuration of the attached rack is provided. This can be used to track hardware issues, and configuration problems.

In the above example, we can see that Port 1, defined as a Rack, is connected to a rack that is configured with 32 Mic Inputs (4 “cards” of 8 inputs in Slots 1,2,3 and 5), a bidirectional AES card in Slot 4 and two output cards in the first of the rack’s output slots. The last 5 output slots are empty. It also shows us that the Firmware Code on the rack is dated 12/12/06. The above picture also shows that the fifth port is configured as a rack with a selection of different cards.

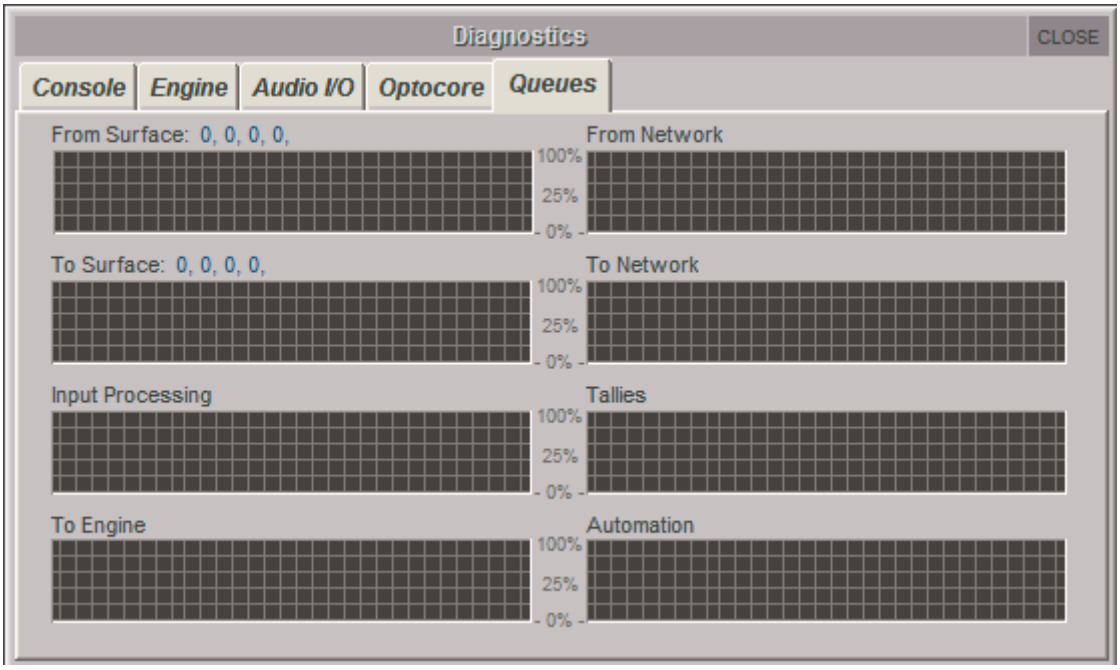
If you are having trouble with specific cards or sockets on the connected rack, or the Audio I/O Panel does not seem to reflect the correct contents of the rack, then the Audio I/O diagnostics can be used to monitor the status of the rack, which cards are installed, and firmware code versions for the connected racks.

Optocore



If Optocore is implemented on the SD5, the Optocore diagnostics will provide details of all the optocore devices connected, including type, firmware revision and loop status.

Queues



In normal operation the Queues tab will not show any major activity.

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